ETC.

LAWRENCE K. FRANK
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CLYDE E. CURRAN
Psychotherapy and the Paradox of the Esthetic

S. I. HAYAKAWA
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ANATOL RAPOPORT
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CONTENTS FOR AUTUMN, 1958

COMMUNICATION AND THE HUMAN COMMUNITY: THE THREE STAGES OF MAN — S. I. Hayakawa — 5

THE ASSUMPTIONS WE LIVE BY — Victor M. Victoroff — 17

TACTILE COMMUNICATION — Lawrence K. Frank — 31

GENERAL SEMANTICS: ITS PLACE IN SCIENCE — Anatol Rapoport — 80

PSYCHOTHERAPY AND THE PARADOX OF THE ESTHETIC — Clyde E. Curran — 98

BOOK REVIEWS:

Vladimir Nabakov, *Lolita* — Lois Mayfield Wilson — 112

Mark Harris, *Bang the Drum Slowly* — Jim Brosnan — 115

Bess Sondel, *The Humanity of Words* — Walter E. Stuermann — 119

DATES AND INDEXES — 124

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COMMUNICATION AND THE HUMAN COMMUNITY:

I. The Three Stages of Man

S. I. HAYAKAWA

MAN IS, as Korzybski said, the time-binder, whose specific means of survival is communication not only among the living members of the species, but also from the dead to the living, from the living to generations yet unborn. Biologists have in recent years begun to view man in much the same way. Different creatures have, in the course of evolution, specialized in the development of a variety of survival mechanisms: man may be viewed, says J. Z. Young, the English anatomist who represents this point of view, as the creature whose specific technique of survival has been the development of means of communication—which includes the brain capacity to create the complex abstractions and symbolizations which make communication of other than primitive kinds possible. Professor Young's special contribution is the light he throws on human societies and institutions and the symbols which unite them by viewing them as mechanisms for the organization of communication. In the Fifth Lecture of his book, *Doubt and Certainty in Science* (New York: Oxford University Press, 1951), he tells how, when looking at the Cathedral of Notre Dame in Paris, he found tears in his eyes. Somebody he felt, was communicating something to him by means of that great and beautiful structure. As a biologist interested in communication among animals and among human beings, he reflected hard and long on the questions, "What is the cathedral communicating? What biological purpose does that communication serve?" In trying to answer such questions as these, he arrived at a number of conclusions about human

cooperation and communication which I, in turn, have filtered through my own evaluative screen and have reorganized. I wish to present here some conclusions I have arrived at since reading J. Z. Young's great book.

A very early method of ensuring communication among people and creating societies, Professor Young asserts, was what I shall call here *the Stage of Social Organization around a Physical Symbol*. At first, Professor Young conjectures, the symbol of society must have been a meeting place:

> In no other animal is the habit of assembly quite so well developed as it is in man. The biological significance of the habit is that by it the brain associations necessary for communications are formed. Some of the earliest of these [human] assemblies occurred at prominent hills of suitable shape, on and around which large numbers of people came together. One of the clearest pieces of evidence that we have about early social man is that he soon began to build large *artificial* hills. Objects nearly as big as anything we build now were the product of some of the early agricultural communities, nearly 10,000 years ago. Such huge objects are found all over the world—an English example is Silbury Hill in Wiltshire.
>
> I suggest that the value of building these objects was that they and their names were the signs by which men were trained to react to each other in such a way as to make society possible. At first, this must have been learned by all coming together at one place. Ritual feasting . . . [and other ceremonies] are occasions of training of the brains of the members of the community, so that they shall continue to react correctly, and hence get a living by cooperation and communication. Mankind has gone on assembling and building assembly places ever since. It is assuredly one of the features that the biologist should notice about him. (p. 95)

The hill is a very convenient symbol because it is easy to ensure that the association is quickly formed. Everyone can stand or sit on the symbol while the ceremonies are performed. . . . But there are obvious disadvantages about large symbols too. If they are to act as signs for the whole of a big population it soon becomes

> hardly possible to get everyone on or in. You can, however, have a lot of rather smaller objects or temples, in place of the original natural holy mountain. Their construction may be reckoned as the first act of making tools of communication, the direct ancestor of television engineering we might say. . . . (p. 96)

As we read these lines from Professor Young, the reader has no doubt been reminded, as I have, of other instances of social organization around physical symbols: the Indian burial mound; shrines, churches and temples; the Ark of the Covenant of the Old Testament. It would be justifiable, too, I think, to classify the organization of societies around kingships—a living individual, or a dynasty of living individuals—as another form of the utilization of physical symbols for creating social cohesion.

NEXT in the history of human cooperation and communication came what I shall call *the Stage of Social Organization around Verbal Symbols.* Let me quote again from Professor Young:

> . . . each temple has its own spirit. How then can all temples serve as a means of association for a large group? At some stage arose the habit of speaking of a single god, resident not in one but in many temples. This was a discovery of very great power. The peoples who first learned it produced one of the greatest of human advances.

Indeed it was a great advance to go from the physical to the verbal symbol, for the separate temples at Miletus and Rome and Carthage and Athens could then be *defined* as the dwelling places of *one* God, *whose spirit is everywhere.* In short, progress from the physical to the verbal symbols enabled social organization among people who lived much too far apart ever to meet in one place for an annual ritual memorializing their solidarity. Everyone who acknowledged the *name* of the one God and the appropriate beliefs and dogmas that went with that acknowledgment could be recognized as belonging to the same community.

But it was not easy to transfer loyalties from tangible and visible (and usually geographically fixed) [1] physical symbols to more abstract verbal symbols. Long established semantic habits had to be uprooted, and there must have been many for whom the transition was too much. As Professor Young says:

> . . . [I]t seems at first quite illogical. The model stretches credulity so far that, like many new abstractions it seems on the face of it absurd. How could one person live in many places? An example of this was the dilemma of David when driven out of Israel to live among the Philistines. His god was associated with the particular soil from which he had been expelled, so he felt separated from his god and actually—and this is the point—he felt unable to worship him. Naaman overcame a similar difficulty by carrying two sacks of hallowed soil with him on a mule.[2] But the real solution of the problem came by emphasis on the name of the god. . . . The worship of the name of one god, not associated with any particular

[1] When the Japanese Crown Prince (now Emperor Hirohito) paid an official visit to England in 1920 in the course of an unsuccessful attempt to renew the then expiring Anglo-Japanese treaty of alliance, he broke precedent by being the first member of the Imperial family to set foot outside of Japan. Several patriots committed suicide as a gesture of protest against this journey, apparently feeling that the Imperial family "belongs" on Japanese soil. Incidentally, this is an example which had not occurred to me at the time I wrote the article, "Suicide as a Communicative Act," in *ETC.*, XV (1957), 46-51.

[2] ". . . and he said, Behold, now I know that there is no God in all the earth, but in Israel. . . . And Naaman said, Shall there not then, I pray thee, be given to thy servant two mules' burden of earth? for thy servant will henceforth offer neither burnt-offering nor sacrifice unto other gods, but unto the Lord." II Kings, 5.15-17.

Also from Abigail Van Buren's column in the San Francisco *Chronicle*, April 6, 1956: "Dear Abby: I room with a guy from Fort Worth, Texas, and he is perfectly sane in most respects BUT he keeps a box of dirt in his closet. This is just plain, ordinary dirt, but it is soil from his 'beloved Texas,' and he treats it like it was 'holy land.' We are really worried about him. Is this behavior normal? —RON.

"Dear Ron: I am not an authority on normal behavior, but I would say for a Texan, this is extremely normal."

This footnote is to suggest to Miss Van Buren that this behavior is normal and has been normal for thousands of years for people at a certain level of sociocultural development.

> place, was surely the symbol that provided the cement for the next stage of human evolution, in which we partly still are. (pp. 97-98)

AGE-OLD sentiments of affection for a central meeting place exist to some degree in all of us to this day. Mohammedans turn to their central meeting place, Mecca, when they pray, and try to visit the city before they die. Roman Catholics, too, like to visit Rome. Christian Scientists have a special feeling for Boston, as Mormons do about Salt Lake City.[3] But Christian missionaries, both Catholic and Protestant, taking full advantage of the abstractive capacity of the verbal symbol, have also long known how to consecrate a meeting place in the wilderness by connecting it, through prayer, with the rest of Christendom. Thus monotheism overcomes, through the process of abstraction, the geographical limitations usually imposed by specific places of assembly as symbols of social cohesion. Nevertheless, the feeling that God is somehow closely associated with our place of birth—which is also the place where we first experienced the sense of membership in a society—dies hard. It is revealed in the expression, "this God-forsaken place," which means any place where you feel homesick and unhappy, and also in the expression, "God's country," which means home—especially after you have been away for a long time.

The high point in Western monotheistic culture, which I have called the Stage of Organization around Verbal Symbols, was, as Professor Young says, the Middle Ages. Speaking still as a biologist studying the communication systems of the human species, he writes:

> The rule by which brains had functioned in the Western world in the middle ages was to describe everything

[3] In 1953, when my wife, eldest son (then seven), and I visited Japan, my father (who is no more Shintoist than I am) took us in the course of our sightseeing to Isé, the location of the most sacred of Shinto shrines. There my father paid the customary fee and reported our names to the priest in charge. There followed a strange and beautiful ceremony of music, dance, and prayer, in the course of which "the Hayakawa family of Chicago, U.S.A." was duly reported in to the gods. Although unbelievers, we found it difficult to remain unmoved.

> that was observed in terms of religious symbols. By this convention of speech and writing all human experience and action was [sic] unified. It was an efficient brain system, producing a well-organized society and reasonably stable conditions. . . . (pp. 100-101)

Professor Young does not mention the Mohammedan world, but it too was organized largely around verbal Master Symbols, reaching a high point in the 8th century, when the Saracen Empire reached from Spain to Mongolia, and still another high point in the Ottoman Empire in the 16th century. The T'ang Empire, stretching from the China coast to the Caspian Sea in the 7th century, and the Byzantine Empire, which reached its climax in about the 10th century, are further instances of great societies formed by a combination of these early principles of organization, which means by the creation of common semantic reactions among large and scattered populations to certain Master Symbols—these symbols being as a rule the person of an emperor or king or pope, who in turn symbolizes an abstract principle which explains to the people the basis of their unity. At this stage there is, of course, no separation between Church and State. Why should there be, when the Emperor is also the Son of Heaven? The ruler of England is still the titular head of the Church of England, however anachronistic the title has become.

USEFUL as this principle of social organization around Master Symbols has been for thousands of years, there were limits beyond which it could not be extended, as the decline of the great empires of the past amply attests. These limits were probably set by the technical limitations of communication. With messages carried by horseback, on foot, or by sailing vessel, it is remarkable that the empires of the past ever managed to become as large as they did.[4] But there

[4] In view of such studies of communication and social structure as Nicholas Rashevsky's *Mathematical Theory of Social Behavior* (Chicago: University of Chicago Press, 1950) and Karl Deutsch's *Nationalism and Social Communication* (New York: John Wiley, 1953), I look forward to better explanations of the decline of great empires than the commonplace explanations in terms of "degeneration" and "moral decay." When was the world *not* going to the dogs?

are other than physical limits to this principle of organization.

What the great religions and empires and religious empires have in common, as I have said, is that they organized communication and cooperation among large groups of people often far removed from each other by having them share common semantic reactions to extremely general Master Symbols. As in the earlier, tribal methods of social organization, however, they relied basically upon the creation of what sociologists call an in-group—which means that by the very act of so doing, an out-group is also defined. Just as you knew in a prehistoric culture that the man you met once a year at the Great Burial Mound was a fellow-tribesman and therefore one with whom you could safely communicate, so you knew in the stage of the great empires that the man who paid his respects to the same Master Symbols that you respected was someone it was safe to talk to. We have all read those conversations in the *Arabian Nights* which begin, "Allah is great!" to which the other person replies, "Allah is indeed great!" After these preliminaries, communication begins. Suppose, however, the second person in response to the greeting, "Allah is great!" replies, "Jesus is my Savior"?

In short, at the stage of social development represented by the great religions and empires (in Western civilization, the Middle Ages), the human race is inevitably divided into the in-group, the believers, and the out-group, the unbelievers, the infidels, the lesser breeds without the law—with whom communication is by definition impossible, or, at best, improbable.

NEXT, then, there is the latest stage in the development of human cooperation and communication, which I shall call *The Stage of Organization around Shared Perceptions.* This is perhaps the greatest advance of all in the history of human communication. The basic idea of this new stage was clearly understood to many of the ancient Greeks.

Let me present a communication characteristic of the stage of shared perceptions, quoted from Strato, one of Aristotle's successors in the headship of the Lyceum at Athens, who occupied that position from 287 to 269 B.C.:

> We must first correct a popular illusion. It must be clearly grasped that vessels which are generally believed to be empty are not really empty but are full of air. Now air, in the opinion of the natural philosophers, consists of minute particles of matter for the most part invisible to us. . . . To prove this make the following experiment. Take a seemingly empty vessel. Turn it upside-down, taking care to keep it vertical, and plunge it into a dish of water. Even if you depress it until it is completely covered no water will enter. This proves that air is a material thing which prevents the water entering the vessel because it has previously occupied all the available space. . . . If . . . you lift the vessel vertically out of the water and turn it up and examine it you will see that the interior of the vessel has remained perfectly dry. This constitutes the demonstration that air is a bodily substance.[5]

What is important to notice in Strato's method of communication is that, instead of saying, "Listen, friend, since I acknowledge the same god as you, you know that you can believe me when I say that air is a material substance," he says, "You don't have to take my word for it; you can see for yourself." As Benjamin Farrington says, in a scientific statement "a confirmatory action is demanded of the listener, a repetition of the experience." Such a statement is what we call in semantics "operational," in that it describes an operation the listener can perform to see for himself whether or not it is true. No doubt people had been making operational statements for thousands of years before Strato came along, but what is important in the Greek scientists, including Aristotle in those writings in which he writes as a scientist, is the fact that they tried *systematically* to make publicly confirmable, and only publicly confirmable, statements about selected areas of experience in order to organize knowledge and make it more readily communicable and usable. These systematic attempts on the part of the ancient Greeks are the foundations of

[5] Benjamin Farrington, *Greek Science II* (Harmondsworth, Middlesex: Penguin Books, 1949), p. 32.

Western science.[6] As we shall see later, Strato and Theophrastus and others like them were 1500 years or more before their time, but without their contributions the scientists of the early Renaissance would have had even less intellectual capital with which to start.

THE SIGNIFICANT thing about Strato's way of communicating from our point of view is that it transcends local or regional loyalties and makes intercultural communication possible. In other words, what Strato says about air makes equal sense whether addressed to Greeks, Christians, Mohammedans, Hindus, or Australian aborigines. Anybody anywhere who has access to a jug and some water can see for himself whether or not Strato is right. And Strato's example of scientific communication is still, in principle, scientific communication today. The scientist today says, "If you will use the same language I use, perform the operations I have performed, and compute your results by the same mathematical system with which I compute, you will come to the same conclusions I came to. If you do not, let us compare what we did, step by step, and find out what misunderstanding of terms, what differences in the conditions of the experiment, what errors on your part or mine, caused the difference in the results. Then, when we have agreed on our conclusions, let us keep in communication with each other and proceed to other experiments. In this way you and I can help each other to know more and more about the world."

NOW THE GREAT REVOLUTION implied in the transition from the Stage of the Master Symbol to the Stage of Shared Perceptions is that while in the former, agreements at high levels of abstraction (about God, about the Transmigration of Souls, about the Divine Right of Kings, etc.) were the basis of agreements at lower levels of abstraction, in the latter

[6] For an insight into some of the *linguistic* reasons for Greek (and Western European) achievements into the systematization of knowledge, the reader is referred to the fascinating and provocative article by Richard Dettering, "What Phonetic Writing Did to Meaning," *ETC.*, XII (1955), 121-136.

the reverse is the case. In order to share perceptions, we have to agree about obvious and even trivial things before agreeing about more general things. We have to collect verifiable observations about a variety of foods and diets and their effects on thousands of individuals before we can make a general statement about nutrition, and even then, we leave our general statement open to revision in the light of later observation. Systematic agreement about the properties of wood, water, metals, air, gases, has to be established before we can talk about matter in general. True enough, science sometimes makes a long extrapolation beyond the confirmable facts, as in the case of the theory of evolution, but that extrapolation is not accepted into the body of science until many more facts are adduced in its support. *Science then, proceeds from agreements at lower levels of abstraction, step by step, to higher levels.*

The caution and the so-called "objectivity" with which science proceeds, far from indicating the amorality of science, indicates its profound sense of social responsibility. The true scientist is so responsible to the rest of human society, including people of nationalities and religions different from his own, that he is unwilling to go beyond what *anybody* similarly trained in observation can confirm. If the scientist holds in check his preference of monogamy over polygamy, of private enterprise over collectivism, of his own national culture over other cultures, he does so not because he is indifferent to these issues, but because he feels that these are subjects about which publicly confirmable statements cannot *yet* be made, and because he wants above all, as a responsible communicator, to maintain the optimum conditions of communication with everybody, including those who may have different preferences as regards marriage customs, economic systems, or patriotic loyalties. He knows that to intrude the preferences of his own culture into his scientific discourse is to cut off his usefulness as a communicator to some segment of humanity. Does this mean that the scientist will forever refrain from making statements about disputed points of conduct or of social organization? Indeed it does not. It means merely

that he is waiting until his statements about such matters can be put in confirmable form. Actually, scientists in the psychological and social sciences have already gone quite far in their attempts to throw light on problems of conduct and public affairs formerly settled by habit, intuition, or dogma; for example, in such areas as child care, psychology, psychiatry, criminology, and industrial management, the storehouse of confirmable and confirmed statements is steadily being added to.

THE ACT OF COMMUNICATION, says Anatol Rapoport in *Operational Philosophy* (New York: Harper, 1953) is the basic moral act. The morality of the tribal stage insists that by regular participation in appropriate rituals at a common meeting place, you maintain communication and cooperation with all the fellow-members of your tribe.[7] The Morality of the Stage of Master Symbols insists that, by the acknowledgment of more abstract symbols accepted in common by thousands or even millions who share those symbols with you, you maintain communication and cooperation with all your co-religionists. The morality of the Stage of Shared Perceptions insists that you try to maintain communication and cooperation with everybody, by basing your communications on the *similarities in human nervous systems* and the *similarities of the experience of those nervous systems in their encounters with the observable world.* One begins with the sharing of perceptions about commonplace or even obvious things, so that, with the establishment of myriads of little agreements, larger and larger agreements become possible.[8]

Each of the three stages is moral, in that each is a method of establishing and ensuring cooperation. Each requires the foregoing of egotistic drives in the interests of the larger group. For man is a social creature, which means that he

[7] "Go to church this Sunday!"

[8] For the present, I am restricting myself to scientific communication as an example of communication through the sharing of perceptions. I plan to discuss the sharing of perceptions through art, literature, games, and other activities in later sections of this paper to be published in subsequent issues of *ETC.*

is an incurably moral creature, finding his fulfilment only as he relates meaningfully and is in communication with a society.

Today we are largely in transition from concepts of morality inherited from the Stage of Master Symbols to newer concepts of morality and social responsibility implicit in the Stage of Shared Perceptions. This means, then, that the vast struggles going on in the world today are incorrectly thought of if they are described as the struggle of moral people (we) versus immoral people (they)—or, as the children phrase it from watching Westerns on television, the good guys versus the bad guys. What is struggling to emerge out of the great moralities of the Stage of Master Symbols, no longer adequate as principles of human organization in a world suddenly made tiny by technological advances in transportation and communication, is the even more general and all-embracing morality of the Stage of Shared Perceptions.

The emergence of this new morality is slow, because we are all struggling under the weight of sackloads of the holy soil of Israel, unable, like Naaman, to understand that it is possible to love and to pray without them.

THE ASSUMPTIONS WE LIVE BY

VICTOR M. VICTOROFF, M.D.*

It is the professional duty of the accountant to examine books, of the Treasury agent to study tax returns, of the consulting engineer to know the characteristics of materials. As a psychiatrist, I examine assumptions. The business of psychiatry is to inventory assumptions and to run a trace to their source in personal history. On the basis of personal assumptions we succeed or fail in school, love, and business, go to the mountains or seashore for vacation, vote a straight or split ticket. Know a man's assumptions and you can not only predict his opinion about love, Pogo, and trade unions, but control his actions. Reason can flourish when assumptions are cultivated, examined, destroyed and replaced. The parameter of self-viewing we call "insight" can exist only when the process by which assumptions become a part of our ethic and philosophy is thoroughly understood.

Assumptions form the skeleton of the body of our personal philosophy, and determine if we shall believe in Anarchy, God, Mammon, Communism, Freudianism, or Scientific Methodology. *Assumptions about people* determine our attitude to them on the golf course, in the living room, at the theatre, in the funeral parlor, and in bed. *Assumptions about ourselves* determine whether we feel hopeful or miserable, regardful or careless of the rights of others, are faithful or unfaithful, sane or crazed. Considering that the assumptions by which people live today will determine the exact moment when we may be shattered into radioactive fog, it would seem that the subject is of some importance, and worth a careful look.

* Dr. Victoroff practices psychiatry in Cleveland and is the author of numerous articles on electroencephalography, convulsive cerebral disorders, electrocoma therapy, etc.

DEFINE assumptions as ideas or principles which are held to be self-evidently, axiomatically true. They are requisite to orientations as to time, place, and circumstance. They may be accepted as the result of expediency or accident or because of slavish identification with others who are admired or hated. Or they may be inductive summations, acknowledged springboards into the unknown, accepted on a frankly tentative basis until something better comes along.

From the oozy squirming of the first protozoan all the way to man, as aggregates of cells became more complicated, those species persisted whose built-in assumptions concerning their world were most nearly right.

Human beings can react as primitively as one-celled animals or in complex considered response to intricate problems. The power of making assumptions is inherent in human beings as in no other form of life. When something new crosses our path we consider it, review several possible responses, evaluate what might happen if one or another of the courses were taken, reject the ones which seem mistaken, and then commit ourselves to a decision. It is this capacity for imagination, prediction, and planning, which permits us to step away from our explosive, primitive reactions.

But this business of thinking is still so new that one must not get the impression that this treasured technique is often taken out of the velvet box and used. Man would still prefer to use the tried and true tools of his earliest ancestry, his automatic reflexes, rather than think. Therefore, just as the one-celled amoeba cannot make any decision other than the ones built into his nerve net, so to a vast extent most of the decisions man makes are rubber-stamped into his nervous system by heredity and training.

In general this works out admirably well, because the system has one advantage. It is explicitly correct in practically all instances involving sudden hazard. A tack, sat upon, does not become a subject for metaphysical soliloquy. The sudden reaction that gets the victim off the chair is a credit to his ancestors from the Jurassic age, and the yell that accompanies the action is recognition that this wonderful,

saving reflex is, after so many millions of years, still with us.

The brain is quite unwilling to work any more than it actually has to, and so it is glad to accept any number of built-in automatic responses, such as running when others run, screaming when suddenly abused, and losing our lunch on an airplane if our neighbor has just done it.

IT IS ASTONISHING how much we take for granted. We live in the assurance that when we step forth, our foot will meet solid ground; that when we inhale, oxygen will pour into our lungs; that when we reach a hand to touch a human being, it will meet warmth of flesh; that when we open our eyes, light and color and movement will churn brightly before us and resolve to visual images; that when a loud noise sounds to the side, we can turn and expect to find a reason for it.

The essence of terror lies in the sudden stab of doubt concerning assumptions vital to our safety. For example the loss of love; the horror of waking under water and knowing that there is no air to breathe; of touching flesh and finding icy death itself; of the misstep that flings one into the chasm. It is a sign of insanity when the voice we hear has no discerned source, when once predictable shapes now ebb and flow in strange distortions.

We react with the crudest, earliest developed part of us first. We use variously the spinal cord, for instantaneous reflex reactions; the turnip-size sub-brain which automatically regulates and attends to the housekeeping and maintenance functions of our bodies; and the cap of convoluted gray matter, the cortex, where executive consciousness reviews, integrates, learns from observed data, establishes policy, and moderates all activity at every spinal or cerebral level.

THE CLOSER to the instinctual, primitive, spinal type of response, the less reasonable the decision for action. On the other hand, the more discipline, willingness to think, and time lag between problem and decision, the more mature and reasoned action can be.

The insufferable circumstance for most humans is to be

confronted with a problem, particularly involving something new or unknown, and to find no answer to it. The resulting discomfort provides the mind with the stimulus to start thinking. To counteract the threat of the unknown, an answer must be found, and characteristically *it is found.* Unhappily it is not necessary to furnish the right answer. The first answer which promises to work will meet the requirements and alleviate anxiety. The mind, defensive as usual, justifies its slipshod work with rationalizations and excuses, afraid that the truth beyond the guess will raise new and worse issues if discovered.

Because we sometimes dread or cannot handle the truth, our honest perceptions about a mystery may have to be squelched or denied and more acceptable stereotyped hypotheses substituted.

The primary trust we have in instinctual reactions, our fear of revelations about ourselves, the suspicion that new realities will be impossible to live with, the painful effort it takes to develop our powers of reasoning makes an enemy of anyone who questions our assumptions and makes us think.

THE PSYCHIATRIST runs this gauntlet everytime he takes on a patient. The patient truculently demands of the therapist, "Tell me all about myself." This is the fellow who will run screaming from the interview—"Where do you get all this stuff about sex? What did you psychiatrists do before Freud, anyway?"

The doctor is blamed, then, for putting "bad thoughts" into the mind of the patient and making him thereby "worse." The demand to "be told the truth" is the patient's way of pleading, "What are you holding against me?" as he regards the psychiatrist as a kind of prosecutor handing down indictments in the name of the community. With an anthropoid glower but preconsciously aware that what is said might well be true, the patient is prepared to deny everything. Without his knowing it, the patient is blocked from any approach to his inner being, and his assumptions about the dangers of searching assumptions stop him cold. If a man believes: that

knowledge of impulse of reprehensible nature will make it impossible to resist the impulse; a criminal thought is a criminal act; a confessed sin cannot be expiated; any criticism of an idea is equivalent to repudiation of the person who holds it—he is not likely to welcome analysis. The experience of uncovering disgraceful traits of character or abominable notions is as shocking as viewing Medusa in the mirror. It takes quite a bit of fortitude or the desperation of the very sick to risk it. In any case, one is not grateful to the instigator of the search. But as the weather man cannot be blamed for the hurricane, nor the geologist for the volcanic eruption, neither can the psychiatrist be held to answer for the disruptive ideas which exist in the minds of the people he studies and tries to help.

It is difficult to view the inner man. We elaborately protect ourselves from knowing our motivations for doing things. The 20,000 people a year who kill themselves have been unwilling or hopelessly unable to use reasoning, and elect to blast out their brains rather than amend their false assumptions.

BEFORE children go to grade school the *manner* in which they are taught assumption-making, and the *content* of such instruction is already fixed. In other words—a large number of the prejudices, shibboleths, catch-words, and slogans by which we live are tattooed on our minds before we learn to read. Usually they are distorted blendings of parental and contemporary social attitudes. Here are some samples:

"That wasn't put there for you to play with."

"You little horror, why were you ever born to me?"

"Keep away from them Catholic churches, the priests eat little children."

Sometimes people do betray their inner convictions in a way they hardly realize, as for instance, the man who said, "My mother would get awfully mad if I told her I was going to get married—especially to a woman."

Or we can guess the real feelings of the wife whose husband has just come home from the office with a headache. With phony sympathy she rushes to him and asks, "Oh, dear, another headache? What can I get for you? An aspirin? Or would you like a nice, cold icepick?"

Here are two men who read about a violent murder in the newspaper. One says, "How horrible. But one thing is sure, no husband could ever do that to his wife." His friend nudges him with a correcting elbow, "Say, who else would hit a woman twenty-five times in the face with a sharp instrument *but* her husband!"

WHEN advocates of an assumption band together and become a Power they inevitably decide they have to control thinking lest heretical ideas have a chance to compete. How is this done? Inspire unquestioning belief in the ruling hierarchy and warn against the tiniest germ of skepticism with the fanatic reasoning of Tertullian, who said, *"I believe because it is impossible."* Surround parishioners with goodness and light, gentleness and piousness, and promise salvation, safety and butter and guns for all true believers. Reduce the time interval between the posing of a choice and the making of a decision; frighten their minds to paralysis so that only animalistic reflexes will be left. If frightening won't do it, dope them with alcohol or martial music or marihuana, mass hysteria, peyote, or opium. Overwhelm them with emotionalism on the most infantile level, or bribe them with material security. Lump all their doubts into one parcel and call it Apostasy or Sedition. Those who still persist in deviationism can be herded into the concentration camp and the gas chamber or shot in the back of the head.

The monopolists of truth, like George Orwell's Big Brother, in the novel, "1984," always revert to the rationalization that humanitarian goals are best served by destroying human doubters of the True Faith. (They forget that assumptions are much more replaceable than humans, and don't mind a bit being destroyed, as humans do). To make it relatively comfortable for the citizens to live with the daily anxiety of

discovering heresy within themselves, the doctrine of "unthink" is taught and propounded as an adequate ethical basis for life.

HERE is what can happen when a fixed, wrong assumption generally adopted, freezes the power of reason for an age. In the 15th century, by interpretation of the Holy Scriptures, the soul, or the conscious part of the mind, was held to be simple and indivisible. The idea of a split or schizophrenic mind was absolutely contradictory to Scriptural edict. It was an idea, as Aldous Huxley says, which was absolutely unthinkable for that time.

If two or more personalities emerged in the same individual, it could not be a matter of delirium or schizophrenia, hysteria, or dissociation, as we would say today, but would have to be explained by the temporary expulsion of the soul and demoniac possession of the body. Any questioning of this idea, or denial of its absolute verity, was punished by fiendish cruelties.

Imagine the year is 1492. You have been arrested and called before the tribunal at Salzburg, accused of witchcraft by your neighbor who claims you used indecencies and charms taught by the devil to attract her husband's affections. How might you fare?

To begin with, it would take a brave man in the 15th century to deny that there were such things as devils. To do so put one under immediate suspicion of being guilty of witchcraft. It was held that it is one of Satan's subtle tricks to set people off guard by pretending and preaching his own non-existence.

You could hardly claim, "There are no devils, there are no witches. This is all damned silly. Tell my accuser to keep her husband in her own back yard." That would finish you. Robert Burton said, "Not so much as a hair's-breadth empty in heaven, earth or waters above or under the earth, the air is not so full of flies in summer as it is at all times of invisible devils."

The judges in your trial would be guided by the infamous

"Hammer for Witches," a manual of categorized assumptions and rationalizations written for the trial and testing of witches by two devout Jesuit monks, Heinrich Kramer and James Sprenger of Mainz and Cologne. These men had a flair for interpreting the inexplicable behavior of human beings according to a neat inclusive legalistic formula. They published their horrid little volume in 1485 with the blessing and authorization of Pope Innocent VIII.

It is an obscene monument dedicated to superstition and "unthink." It was used not only by Catholics but by all hierarchies, lay and religious, who had to smell out and destroy the followers of Satan. It reads like the ravings of a paranoiac who stands with his knife at the throat of his intended victim, giving his "reasons" why he will shortly kill. It perpetuated "a fixed false belief, unavailable to reason," which makes it paranoid, not because its authors were psychotic—and this is the special dreadfulness of *Malleus Maleficarum*—but because *no other* concepts could plausibly explain for that age phenomena which had to be understood.

MONTAIGNE said, in considering almost three hundred years of the well-meaning infamy overtly perpetrated in the name of public safety: "After all, it is rating one's conjectures at a very high price, to roast a man alive on the strength of them."

If the judge felt pity or a vague sense of belief in your plea of innocence, he would read in *Malleus Maleficarum* the quotation, "And there are witches who can bewitch their judges by a mere look or a glance from their eyes, and publicly boast that they cannot be punished."

And the judge would know his sympathy was devil-inspired and would listen more attentively to the Chief Prosecutor.

There are several important regulations that would rule on justice to a suspected witch:

> First, anyone who is manifestly guilty of flagrant heresy is assumed so because of some expressed pact with the devil since it is held obvious that their feats

> would not be possible without the devil's help. Secondly, it is equally clear that the patrons, protectors, and defenders of such men, are manifestly to be judged in the same way, and subjected to the prescribed punishments. And thirdly, all Bishops and rulers who do not essay their utmost to suppress crimes of heresy, with their authors and patrons are themselves to be judged as evident abettors of the crime and manifestly to be punished in the prescribed manner.

So much for your character witnesses.

After you have withstood the needles, the lash, the weights on the chest, and trial by hot coal and melted lead, the question is raised, "What should be done when a person who has fallen under strong suspicion steadily refuses to comply with his judge's order to abjure her heresy?" In this court it is held, "A violent suspicion is sufficient to warrant a conviction and admits no proof to the contrary."

So much for the evidence.

In the complicated examination of a witch there is yet another technique that should intrigue you. After all tortures have failed, the following proceeding is advised:

> The judge shall then loose her and take her from a place of punishment to another place under a strong guard. Let him cause her to be well-treated in the matter of food and drink and meanwhile let honest persons who are under no suspicion enter to her, and talk often with her on indifferent subjects, and finally advise her in confidence to confess the truth, promising that the judge will be merciful to her, and that they will intercede for her, and finally let the judge come in and promise that he will be merciful, with the mental reservation that he means he will be merciful to himself or the State, for whatever is done for the safety of the State, is merciful.

What is expedient—is moral.

That means they promise you absolution and a free trip across the border if you confess for the record. Quite tempting, and rather than be grilled, signing a confession as a formality in exchange for mercy seems a fair bargain. But before you sign look closely at the magistrate's fingers. They're

all crossed, and you, fair lady are ready for your cleansed soul to rise to heaven in the smoke of your private bonfire. You can console yourself with the knowledge that 2½ million other humans tied to the stake and burned in the next couple of hundred years will cast the only light in this dark age.

IT IS UNFAIR to call these customs monstrous. The prosecutors acted from incorrect assumptions and suffered from the inevitable delusion of dogma that it is the business of assumed rightness to use extreme sanctions to protect its power and its convictions. It is a sad fact that the evil men dimly perceive and must deny in themselves, they may try to destroy in others.

The stronger the temptation to use forbidden, primitive methods, the more anxiety is developed in the potential sinner. Seeking a way to prevent oneself from performing an act which would be disapproved and punished, security is found by seeking these evils in others, then vindictively punishing them for one's own contemplated crime.

There is a saying, "We become what we hate." Often, the quotation should be, "We *are* what we hate."

Genuinely afraid of conflicts between animal instincts (shall we say "sex" and be done with it?) and rigid theological demands for moral conduct, 15th century man felt beset by demons, mostly female. Denying they existed in himself, he was all too glad to find them in others. Burning the devil out of some pretty witch was almost as satisfying as exorcizing one's own demon, much less painful, and offered the added bonus of an orgasm of self-righteousness.

If a man in the Middle Ages was sure he was possessed and that this was his own fault, the consequences of admitting it were so dreadful that it could not consciously be acknowledged. Insight would be literally fatal. Similarly, today, people avert their faces from their inner battle with private devils, and with their outward attitudes deny that the inner doubt exists at all. In the words of Phillip Brooks:

> Covetousness dresses itself in the decent robes of prudence. Idleness calls itself innocence; prodigality

goes garbed as generosity. . . . Denunciation of obscenity can serve as a moral cloak and a fair mask for extraordinary lasciviousness in the accuser.

A WIFE intolerant of her husband may have come to the conclusion that he doesn't love her. Faced with this "revelation" she must now adapt herself to her new status, never appreciating that what is new is not that she "understands" her husband, but that she merely has found a new way of thinking about him, which serves as a screen behind which she can rearrange her prejudices. So she will translate his every act of affection as a gesture of malice; his gifts of love as bribery; his tenderness as hypocrisy; his candid criticism as proof of his contempt. In closing her mind to acceptance of his love, in twisting all evidence to convict him, she may never know she is rejecting him, and worse still—that she can never know why she must spurn him. This deceit of keeping two sets of books about our mental transactions, one for true and one for neighbors—fills the psychiatrist's office, the divorce court, and the prisons. In such a marriage the wife as inquisitor implacably and righteously tortures her mate, safe behind her neurotic fear from any appeal to duty, to love or to reason.

In trying to face one's own assumptions, it is difficult to appreciate in a single instance whether we deal with a simple primitive reflex, a primary assumption, the superficial admitted axiom or the rationalizations that support the whole structure.

SINCE it is so difficult for people to search and understand themselves, how much more difficult for them to understand each other? Here for instance is the question of the atheist who believes there is no God, the devout who believes in God, and the agnostic who says he simply has no opinion in the matter.

Here are three assumptions: "Yes," "No" and "I don't know." Each regards the others with dread. The religious cannot prove the existence of God, but fears the atheist will estrange him from his Lord, and leave him bereft of Supreme

Protection. The atheist, who cannot prove there is no God, cannot permit the thought that a man is not solely responsible for his own place on earth. Each is moved to defensive fury lest by the prejudice of the other he is denied the formula for personal security from the perils of existence. Both push at the agnostic who is exhorted to declare himself. His existence as a living skeptic, provokes anxiety in both camps, claiming Truth.

Can "yes," "no" and "maybe" coexist? Possibly. Each would have to develop insight not only with regard to their own ways, but to the ways of others.

Contrary ideas exist in the minds of man, whose intelligence is capable of formulating protean varieties. As long as many of these ideas are mutually exclusive and go to war, it will not be the ideas that perish but the men who advocate them. All massacres are done for noble purposes, such as: the glory of God, for race purification, for upholding the torch of the True Belief, in the name of the downtrodden proletariat, and for group and national security. All highly worthy purposes, but before men, women and children drop sickened with the leukemia of radiation disease, shriveled by the million-degree temperature of the atom and hydrogen bombs, or exploded into atoms by enormous shock waves, someone must ask whether it need be true that this or that principle is more important than people. Social principles after all, are fallible, transient human assumptions. Principles, however glorious, that lead to the mass destruction of men, particularly on the vast scale now possible, are inherently wrong at least in that they betray human evolution and incline the race to suicide, rather than to adaptation and life.

ASSUMPTIONS are like flashlight batteries. They come predated; for a while they cast a light, but then they become weak and undependable, and must be discarded for fresh ones. Assumptions are best made in security and with encouragement, with adequate time for perusal of all available verified data, with no element of influence, benevolent or otherwise, seeking to neutralize the brain. An ultimate free-

dom is the right to make, select and propound one's own assumptions, and the right to challenge or accept the validity of anyone else's. But transcendent wisdom reaches even further to ask, "Why do I—does he—do we—feel this assumption is so *right?*"

When someone says: "We hold these truths to be self evident," it must be remembered no assumption is pervaded with ineffable and uncontrovertible truth and no authority can claim monopoly of revelation. Not Mohammed of Arabia, nor Confucius of China, nor Moses of Egypt, nor Jesus of Nazareth, nor Freud of Vienna, nor Einstein of Princeton. No doctrine is exempted from thoughtful appraisal and reappraisal, no dogma from skepticism, no intuitive discovery from contradiction by methodical scientific testing.

"Father knows best," may be replaced with "Father *knew* best," with no loss of love or affection for father. Skepticism is not arrogance; doubt is not defiance; criticism is not disloyalty; sophistication is not contempt; and discrimination, however nonconformist, need not be delinquency. The replacement of a dying or dead assumption with a new fresh one, whether on the level of personal insight or community conviction, is a time for celebration and carnival. As a scientist, Fredrick Henle, once said:

> An hypothesis which becomes dispossessed by new facts dies an honorable death; and if it has already called up for examination those truths by which it was annihilated, it deserves a monument of gratitude.

In a world of democratic free competition of ideas, the most fruitful and valuable will displace those which have outlived their usefulness. As alchemy has given way to chemistry and astrology to astronomy and mathematics, our present beliefs are merely pilot experiments on the way to human revelations yet unguessed.

WE CANNOT fight environmental pressures of the atomic age with the weapons of our animal heritage, instinct and intuition. We humans have a future on earth as long as

we master our brute emotions, our primitive fears and our atavistic impulses. Control of our environment begins with control of self. Control of self demands we identify the assumptions by which we live and think through why we believe in them.

To experience the sublime cognitive experience of intellectual revelation is really to live. With the search for motivation the sadist who beats his dog and says he's training the animal can learn there is a better way to handle jealousy of a sibling. The traveling salesman who summons the call girl to his hotel room, "To keep the powers alive—for the wife, you know," may face up to his preadolescent fear of never growing up. Surrendering a prejudice is as difficult as letting a life preserver float away in a hostile sea. But this is prerequisite to the rescue of personality in tumult.

Still unknown to any system of insight therapy or depth analysis is a comfortable process by which humans can hold, test, reject and exchange assumptions on a merit basis. There is a throne among the mightiest reserved for the genius who can teach us this skill. The world must have this thought, which today is still unthinkable.

But be warned, the idea that will save the world will probably strike us as a grotesque, appalling heresy. It will be proclaimed by apostates and subversives. It will be called high treason. Its protagonists will be martyred and persecuted. But let us fervently hope, whatever it is, that we eventually admit it to the top of the list of the assumptions we live by, and "Yes," "No," and "Maybe" can live in toleration and understanding together.

TACTILE COMMUNICATION

LAWRENCE K. FRANK *

I. INTRODUCTION

THE SKIN is the outer boundary, the envelope which contains the human organism and provides its earliest and most elemental mode of communication. Despite their often crucial role in human behavior, touch or tactile experiences have been largely neglected, especially by those concerned with personality development and expression. In view of their pervasive role in human communication, this statement of what tactile experiences involve may offer clues to further study and provide some insights into the large significance of tactile communications.

This paper [1] will attempt to outline the processes of tactile communication in terms of the following topics: (a) tactile-cutaneous processes; (b) tactile experiences in personality development; (c) cultural patterning of tactile processes; (d) pathology of tactilism; (e) need for further research.

As a theoretical basis for this exposition, it is assumed that there is a series of communicative processes, of recognition and response to signals, signs, and symbols, initially received through the various sensory processes. Thus the infant as an organism, with the wisdom of the body and its inherited

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neuromuscular, sensory, and physiological functional capacities, arrives with a repertory of signal recognition and response. He is sensitive, in greater or less degree, to the biological *signals* received from the environing world, including human beings, and from his internal functioning. He responds to these in the naïve inherited patterns of reflexes such as grasping, Moro, Babinski, coughing, yawning, sneezing, swallowing, regurgitating, lid and pupillary reflexes, and through various sensory processes, gustatory, olfactory, visual, auditory, taste, smell, light-dark, noise, and especially tactile, through which he receives signals such as warm-cold, pain, pressures. These processes initially function with little or no discrimination, although there are obviously individual differences in thresholds which may vary from time to time as the infant's internal states are altered, especially when ill, fatigued, or emotionally disturbed.

When the infant receives two signals more or less concomitantly, as in conditioned reflex experiments, the second unconditional and previously indifferent signal may become a surrogate for the first, becoming a *sign* and evoking the response previously called out by the biologically adequate signal. Thus, the infant begins to enlarge his repertory of recognition and response, learning to exhibit responses to *signs,* signifying what is occurring or about to occur.

Later on, the infant learns to recognize various signals and signs as *symbols* which are defined by others. Not only are these *symbols* pointed out and made apparent to the child by an adult, but the response to these symbols is also defined and established by the adult so that the child learns to perceive and then to respond in patterns which are not the products of trial and error searching, or fixation by rewards and punishment, nor are they random, improvised activities or inherited gestalts.[2]

[2] "Symbols—in the proper sense of this term—cannot be reduced to mere signs. Signals and symbols belong to two different universes of discourse; a signal is a part of the physical world of being; a symbol is a part of the human world of meaning. Signals are operators; symbols are designators." E. Cassirer, *Essay on Man* (New York: Anchor Editions), p. 51.

Each symbol is culturally defined in a context or field, and the response thereto is culturally patterned and prescribed so that the human child learns whatever tradition prescribes as appropriate for such symbols. Moreover, the child is usually eager to learn these culturally patterned symbols and to exhibit the prescribed responses thereto which he sees or hears others doing. As contrasted with the various theories of learning now current, we might say that this cultural learning, once started, continues like an autocatalytic process, insofar as the child, without specific immediate rewards and punishments, without reduction of tension or reinforcement in the usual sense, strives to live in the adult world, however difficult or frustrating he may find his attempts to master it. He learns to learn,[3] as symbols and concepts, especially language, provide entrance into the adult world and guides to its understanding. Thus the infant-child begins to recognize and to respond to *symbols* which are culturally patterned meanings; he learns to impute these meanings to the world and to human beings and to exhibit the appropriate conduct thereto. Nothing in the signal-sign before such learning can evoke this symbolic response which also is rarely or ever exhibited without such learning. Moreover, the response to a symbol may be a newly learned response not in his original repertory.

We may observe in this process how a basic biological awareness becomes selectively focused to include (and therefore to exclude) only that which is relevant in the multiplicity of events—how this selective awareness becomes patterned perception as the individual learns to perceive what he is ready to recognize and respond to, and to impute meaning to what he perceives.

THUS the person creates, as it were, his own stimuli by evoking from the world what has been established, for him, as meaningful and significant for eliciting the appropriate

[3] Learning to learn has been termed deutero-learning by Gregory Bateson, "Social Planning and the Concept of Deutero-Learning," *Conference on Science, Philosophy and Religion: Second Symposium* (New York: Harper, 1942), pp. 81-97.

responses, as culturally patterned.[4] With the development of language the child begins to develop concepts and symbols as ways of organizing experience, as patterns for stabilizing the environment, maintaining a more steady threshold in the face of the continual flux of experience.[5] Then he interprets that version of experience in terms of his cultural patterns. The individual thereby is able to impose some order and meaning upon the world, relating himself to events and people through the cultural-social patterns which he has learned and uses in his own idiosyncratic fashion.

This approach enables us to trace the sequential process whereby the organism transforms all of his biological needs and functional capacities into the purposive, patterned conduct and relations for living in a symbolic cultural world and then participating in the social world, while continuing to be and to function as an organism and to maintain his own idiomatic life space or private world. Whatever the individual organism learns as he becomes a human personality may be viewed as an elaboration, refinement, transformation of his basic sensorimotor and biological functions which continue to operate, but in the patterns and in relations to the world as he has learned to perceive events and to code them and to deal with them in his patterned responses.

Thus, it is essential that we try to clarify the role of various functional and sensory processes as basic to all human communication and to recognize more clearly the significance of tactile experience, here termed tactilism.

Since the child must establish and maintain continual intercourse with the world, we may view this process of development and maturation in terms of communication. Beginning with the primary physiological functioning (eating, eliminating, etc.) and sensory awareness of, and naïve spontaneous responses to, the world, especially persons, the child may be viewed as learning to replace these initial modes of communication with patterned purposeful practices and rela-

[4] L. K. Frank, *Nature and Human Nature: Man's New Image of Himself* (New Brunswick, N.J.: Rutgers University Press, 1951).

[5] K. Goldstein, *The Organism* (New York: American Book, 1939).

tions which involve the establishment of signs and symbols for communication. As indicated, these signs and symbols serve as surrogates for the primary signals but also they function as uniquely human modes of communication, so that the individual increasingly lives in a symbolic world and increasingly seeks symbolical fulfillments, especially in his interpersonal relations. The extent and elaboration of these symbolic processes and the problems of communication they present, reflect and express the cultural traditions of each people who may be found with different degrees of elaboration of communication.

TACTILE sensitivity is one of the primary modes of communication and of orientation. While tactile communication is never wholly superseded, it is elaborated by the symbolic process. "Vocal language has a very great technical advantage over tactile language; but the technical defects of the latter do not destroy its essential use." [6] Thus in many interpersonal relations, tactile "language" functions most effectively and communicates more fully than vocal language. Moreover, the meaning and full significance of many symbols depend upon prior tactile experiences which give the symbol both its meaning and its affective richness. "The direct animal intuitions aren't rendered by words; the words merely remind you of your memories of similar experiences." [7] Thus we may say that in all symbolic communications such as language, verbal or written, the recipient can decode the message only insofar as his previous experiences provide the necessary meaning and the affective, often sensory, coloring and intensity to give those symbolic messages their content.

The frequency of tactile figures of speech, for example, in English speech, illustrates this. Thus we repeatedly say, "I am touched," or "I feel," which implies both a tactile and an emotional response. Experiences are described as "touching" while many adjectives such as "harsh," "rough," "smooth,"

[6] Cassirer, p. 56.

[7] Aldous Huxley, *After Many a Summer Dies The Swan* (New York: Avon), p. 130.

"tender," "warm," "cold," "painful," imply a tactile sensation or experience even when used to describe non-tactile events. Without prior tactile experiences, these adjectives would carry little meaning.

Since cultures differ in the use of symbolic communication, especially in use of written languages, the more highly elaborated symbolic cultures, which rely so largely upon written communication, assume that a person has had these early tactile experiences, which, as we may observe in our own culture, may be denied or curtailed in the infancy of some children. On the other hand, those cultures which provide rich and prolonged tactile experiences—carrying the baby next to mother's body and deferring weaning until late or keeping the baby swaddled or on a cradle board, may by so much limit the development of many kinds of symbolic recognition and response. Or we may contrast those cultures which rely largely upon signal communication and utilize symbols and concepts to a limited extent, with other cultures which subordinate signals and rely chiefly upon symbols and concepts. Again to quote Cassirer, "A sign or signal is related to the thing to which it refers in a fixed and unique way"; "A symbol is not only universal but extremely variable," so that communication through symbols enlarges the ambiguity of messages, increases the "noise" and makes for redundancy, all of which is enhanced when the traditional symbols become less clear and acceptable and so are either redefined with new meanings or superseded by new symbols which only slowly are accepted.

It seems necessary, if not desirable, in this discussion to accept a transactional conception.[8] This transactional process may be distinguished from the familiar action, reaction, and interaction of classical physics by recognizing that *action* implies self-action, as in animism, or an autonomous clockwork, which rarely or ever occurs except perhaps in the spontaneous emission of a quanta of energy; that *reaction* implies an alteration of the inertia of a particle or body under an impact

[8] John Dewey and Arthur Bentley, *Knowing and the Known* (Boston: Beacon Press, 1949).

from outside which moves it, changes its direction of movement, or alters its motion; that *interaction* implies dual *reactions* where two bodies receive impacts from each other and react accordingly. In *transactions* we are concerned with the activity of an organism which evokes messages from the environment, including persons, and responds to those messages in terms of their meaning for him, with patterned activities that are not naïve reactions, but are the products of past experiences under adult guidance. Thus the transactional process involves reciprocal, circular relations, like a feedback, with the participating persons tuned or prepared for such circular, reciprocal communications. The messages are governed as much by the intended receiver as by the intent of the sender, and each message evokes a response from the other, as contrasted with a linear reaction or interreaction.

The individual may be seen as actively participating in the communication process; he does not passively await a stimulus, but actively scans the world for the kind of messages he is ready to receive and often tries to evoke those messages. This goes beyond the familiar stimulus-response formula of a linear relation, necessitates a circular, reciprocal relationship in which the two persons communicating by their responses to each other evoke reciprocal responses as a dialectical process or as resonance.

Here we see what G. H. Mead described as "taking the role of the other," since the sender of a message assumes that the receiver, while having different ways of thinking and of symbol recognition and response, will receive that message, exhibiting some shared conceptions, and will respond. This response may not be what is expected or desired, but it is more or less responsive to the message because in turn the receiver of the message, partially at least, "takes the role of the other" when decoding or interpreting it and replying. Probably the "taking of the role of the other" becomes more significant, even crucial, in sending or receiving signals, such as direct tactile messages which may not have the culturally-defined meanings of linguistic messages and other signs and symbols. If the symbols of each one are too divergent, neither can take

the role of the other or communicate adequately except by gestures and other signals, as we discover when in another culture.[9]

WHILE symbols are essential to interpersonal communication on a human level, they are also essential for communication with the self since we think of ourselves in images of the self and rely upon a variety of linguistic symbols to orient and guide our activities, especially in reveries, fantasy, inner speech, and reflective thinking.[10]

The role of emotional reactions and persistent affective responses (anxiety, guilt, hostility) in communications needs to be more fully recognized and further clarified, especially since every message sent and received by a person evokes some physiological change which, if of sufficient magnitude or persistence, we call emotional or affective.[11] The communication between two persons may be governed more by these physiological emotional reactions than by the content of the message, especially since the coding of a message may be warped or distorted by the emotional reaction of the sender. The *quality* or *intent* of a message, as contrasted with its content, may be conveyed by the emotional coloring-tone of voice, facial expression, gestures, or lightness or heaviness of touch, and the recipient may respond largely to this intent or quality. Thus small children often respond more to quality than to content, hearing the tone of voice more than the words spoken by a parent, and responding to the kinesic messages.[12]

This suggests that in communications we may observe the transmission and reception of symbolic content *along with*

[9] George H. Mead, *Mind, Self and Society* (Chicago: University of Chicago Press, 1934).

[10] L. S. Vigotsky, "Thought and Speech," *Psychiatry*, II (1939), 29-54.

[11] L. K. Frank, *Feelings and Emotions* [pamphlet] (New York: Random House, 1953).

[12] Ray Birdwhistell, *Introduction to Kinesics* (Louisville: University of Louisville, 1954).

signals so that the recipient of such dual messages may respond simultaneously to the content (as he has decoded it symbolically) and also to the signal which evokes the physiological responses we call emotional reaction or affective response. This ambiguity may be deliberate and indeed in some cultures it may be an accepted convention, as in joking, teasing, irony, sarcasm, especially among certain castes, classes, or in dealing with another age group, as parent to child, or the initiators to the pubertal boy or girl. As indicated later, there are various kinds of tactilism when an individual evokes direct tactile signals, as in masochism, or reassuring tactile contacts to confirm and reinforce verbal messages of affection, or gives contradictory tactile messages, in play and teasing.[13]

Tactile experiences considered as messages and responses are exceedingly diverse and capable of an amazing variety of transformations in human communication, where, as in language, we must recognize both the cultural patterning and the idiosyncratic deviations and elaborations.

The skin, according to the textbooks, is sensitive to warm-cold, pain, and pressure, with varying thresholds to stimulation. The awareness or perception of warmth or cold is, however, relative to the state of the organism, including emotional reactions, immediately prior experience and earlier experience, such as habituation (e.g., "chemical fingers"), also impairment of homeostasis. Pain likewise may be elicited in varying degrees, although Hardy *et al.* assert a constant threshold to pain produced by a heat lamp upon the forehead.[14] An altered awareness of pain has been observed in individuals under different circumstances, such as fighting, and especially strong sexual or emotional disturbances (which may be exhibited in higher or lower thresholds to pain). And as indicated later in the ensuing section on pathology, there may be acute hypersensitivity as well as anesthesias to pain or any tactile stimulation, a masochistic enjoyment of pain, and a

[13] Gregory Bateson, "A Theory of Play and Fantasy," *Psychological Research Reports 2* (New York: American Psychiatric Association, 1955).

[14] J. D. Hardy, H. Goodsell, and H. G. Wolff, *Pain, Sensation, and Reactions* (Baltimore: Williams and Wilkins, 1952).

variety of aberrant responses to experiences exhibited in and through the skin (stigmata).

Head suggested the two terms: *protopathic* and *epicritic* sensory awareness: *protopathic* being the awareness of the undifferentiated, more or less massive, impacts of noxious, harmful or painful stimuli, and *epicritic* being the capacity for discriminating through tactile contacts, especially in purposive seeking or skillful manipulations. This distinction, whether or not structurally present in the nerves, calls attention to the two phases or stages in tactile experiences which may be received as gross undifferentiated tactile contacts or pressures, and the finely differentiated contacts of varying intensity and tempo. The first often evokes avoidance although in some cultures close tactile contacts are frequently sought and, of course, are present in sexual intercourse. The second involves not only discrimination of textures, shapes, elasticity, etc., but also manipulations of what is perceived tactually. Tactile perception always involves some kind of contact or impact and may be increased by training or decreased by habituation.

THE SKIN is the largest organ of the body with a variety of functions,[15] including the crucial function of acting as a thermostat for regulating the homeostatic processes. Being exposed to the world, it receives the direct impacts of the environment which it mediates to the organism. Also, the human skin is being continually renewed in the epidermis and is richly provided with sweat glands, except for a few surfaces, and with apocrine glands under the arm (which do not function until puberty), and with sebaceous glands at the roots of hair. The skin has both a taste and an odor. Thus sweat is salt and secretions from various areas of the body, especially the apocrine glands and the genital areas, may be considered as messages which have a highly stimulating effect on others. Unlike many other mammals, the human body has only vestigial body hair and therefore the human

[15] W. Montague, *The Structure and Function of Skin* (New York: Academic Press, 1956).

skin is more exposed to the world and is probably more sensitive. Moreover, movements of the hair of the body stimulate various cutaneous sensations by greater or less follicular displacements. Thus, stroking the hair "against the grain" may tickle or be painful, while "with the grain," as the hair lays naturally, may be pleasant, soothing and reassuring.

There are sympathetic connections to the sweat glands and to the capillaries just under the skin, but until recently these have not been considered as conducting tactile stimuli.[16] As is well known, the sweat glands function not only in response to heat, but also as the human subject undergoes stress and emotional reactions of greater or less magnitude—the so-called psycho-galvanic reflex. The capillaries also dilate and contract under similar stimulation of heat-cold and of emotional reaction, as shown by blushing and pallor in various psychosomatic disorders, like Reynaud's disease.

Rats which have been gentled are better able to metabolize food and are less susceptible to surgical shock,[17] and various forms of experimentally produced convulsions, etc.[18] Licking, nuzzling, cuddling of young mammals by the mother is a form of tactile stimulation that apparently has an important function in the care and rearing of the young. Kittens cannot urinate or defecate unless the mother licks the anus or urethra and thereby elicits evacuation.[19] Rats raised from birth with a cardboard ruff around their necks to prevent licking their bodies were less capable as adults of caring for their own young by licking them.[20] Pavlov is reported to have induced

[16] A. Kuntz and L. A. Haselwood, "Circulatory Reactions in the Gastro-Intestinal Tract Elicited by Local Cutaneous Stimulation," *American Heart Journal,* XX (1940), 743-749; C. A. Richins and K. Brizzee, "Effect of Localized Cutaneous Stimulation on Circulation in Duodenal Arterioles with Capillary Beds," *Journal of Neurophysiology,* XXI (1949), 131-136.

[17] F. S. Hammett, "Studies of the Thyroid Apparatus," *Endocrinology,* IV (1922), 221-229.

[18] E. W. Bovard, Jr., "A Theory to Account for the Effects of Early Handling on Viability of the Albino Rat," *Science,* July, 1954, p. 187.

[19] J. A. Reyniers, "Germ-Free Life Studies," *Lobund Reports* 1-2, 1948-49.

[20] H. G. Birch, personal communication.

sleep in dogs by applying rhythmic electrical stimuli of low intensity to the skin of the animal.

While we think of the skin as the outer integument exposed to the world, the gut, from the mouth to the anus, is exposed to material from the environment and is lined with epithelial cells not unrelated to the skin and derived from the same embryological layer as skin and nervous system. It is also significant that end organs for tactile stimuli are richly provided in and around the mouth and anus, in the male and female genitals, and are apparently more numerous or sensitive in the skin adjacent to these parts, the so-called erogenous zones or areas. Apparently the human female is tactually sensitive all over her body.[21]

The tactile sensitivity of the body differs from location to location, as dramatically shown by the several erogenous zones, the specific areas sensitive to being tickled and the increased or decreased sensitivity produced by repeated experiences, such as shaving the face, plucking the beard, eyebrows or body hair, calloused hands, soles of feet, etc.

Years ago E. A. Bott at Toronto found that the third, or ring finger, was passively the most sensitive to a hair aesthesiometer *under controlled laboratory conditions,* while the forefinger was much more sensitive when being used purposefully to detect the presence of a hair concealed under a piece of cigarette paper. This indicates as in vision and hearing, that the individual has a highly selective and variable awareness and an idiosyncratically patterned perception especially when engaged in goal-seeking, purposive conduct. What the individual perceives is not a passive response to a stimulus but an active creating or evoking of the stimulus for which he is prepared, or to which he is expecting to respond.

Most motor activities are oriented by tactile stimulation: the hands, fingers, even the feet, are guided by touch. Thus the function of the opposed thumb-finger, which is uniquely human, is governed by tactile stimulation and discrimination, guided by visual cues.[22] As Wolfe has remarked:

[21] Margaret Mead, *Male and Female* (New York: Morrow, 1949).

[22] M. F. A. Montague, "Sensory Influences of the Skin," *Texas Reports on Biology and Medicine,* II (1953), 291-301.

> The *hand* as both a tool of learning about the outside world and as an organ of spatial sensibility can be considered the fundamental vehicle of the structure of thought. Spatial differentiation goes with physical as well as mental "balance," and gives to perception the tri-dimensional aspect essential to the orientation of man in the outside world and to its representation in his mind. One can therefore say that the hand as an organ of sensibility assumes spatial or tri-dimensional imprints of the outer world in the cortex of the brain.[23]

SINCE the adult or older child exhibits such an array of smooth coördinated and often highly skilful motor activities, it is often forgotten how much prolonged learning and especially tactile experience were required earlier to achieve these motor patterns. Also, the individual rarely recalls how, in early life, he relied upon touch for his initial orientation to the spatial dimensions of the world and of people, being guided by varying pressures and resistances, bumps, mild or severe pain, and by warmth and cold, textures and elasticity for establishing his later coördinations in which visual signs (size, shape, appearance, colors, distances, etc.) function as surrogates for these primary tactile signals.

We can say that the skin as an organ of communication, for both sending and receiving messages, is highly complex and versatile, with an immense range of functional operations and a wide repertory of responses. These can be understood only by assuming a more richly endowed sensory-nervous process than the warm-cold pain-pressure categories. It is probable that sympathetic innervation, perhaps that of the sweat glands and capillaries, is also conductive to the viscera and to other organ systems, thereby accounting for the soothing effect of rhythmic patting and caressing on a baby, also of rough handling which may evoke emotional reactions.[24] In so far as capillary dilation and constriction by cold or warm

[23] C. Wolfe, *The Hand in Psychological Diagnosis* (New York: Philosophical Library, 1952).

[24] See note 16 above; also D. P. C. Lloyd, "Reflex Action in Relation to the Pattern and Peripheral Source of Afferent Stimulation," *Journal of Neurophysiology*, VI (1943), 111-119.

either initiates or accelerates large alterations in circulation of the blood, with concomitant changes in respiration and glandular secretion, the skin may be regarded as one of the major components of the homeostatic process.[25] There are varying thresholds to tactile stimulation as when the subject being stimulated may respond to the same stimulation in different ways at different times, according to the time, place, and state of the individual when receiving or seeking such tactile contacts. There are also apparently alterations in sensitivity-response with age, as shown by the increased awareness of the skin and frequent attention (scratching, etc.).

A person who is strongly reacting emotionally, as in acute fear or pain, or grief, may be able to recover his physiological equilibrium through close tactile contacts with another sympathetic person. Thus, as will be discussed later, patting the baby rhythmically, not only soothes him, but apparently promotes well-being and metabolic efficiency. Babies and children especially require these contacts to recover from acute disturbances. Prolonged deprivation of such tactile contacts and soothings may establish in the baby persistent emotional or affective responses to the world, since his initial biological reactions to threats have not been allayed and hence may become chronic.

The human organism is engaged in continual intercourse with the environment. It continually receives and responds to messages coming as changing air pressures and breezes or winds of varying impacts, being warmed or cooled, exposed to light of varying intensity in the sun, etc., to ultraviolet and other radiations, including cosmic rays, to shorter waves, such as sound, to liquids, such as fog, rain, bathing. These impacts are all initially received by the skin, through which take place varying impulses and internal processes of large significance for organic well-being. Caressing, again a rhythmic minimal tactile stimulation, not warm-cold or pain or pressure in the sense of eliciting deeper kinesthetic or

[25] A. Kuntz, "Anatomic and Physiologic Properties of Cutaneo-Visceral Vasomotor Reflex Arcs," *Journal of Neurophysiology*, VIII (1945), 421-430.

muscle sense, also provides a sensitive mode of communication of immense significance in adult life as exhibited in intimacy and affectionate relations.

It has been found practical and effective to administer various medical treatments through the skin [26] by electrical conduction, by rubbing into the skin, such as sex hormones, to produce Vitamin D in the organism by exposure to ultraviolet light and to soothe and relax disturbed and excited mental patients by prolonged immersion in warm water. These are elaborations and refinements of the ancient practices of applying poultices and other mixtures to the skin for the treatment of internal conditions, all indicating that the skin is a conductor of many different kinds of substances and energy transformations of which touch and the four classes of tactile sensation are only limited examples.

TACTILE sensitivity is probably the most primitive sensory process appearing as a tropism, thigmotaxis, in lower organisms. Many infra-human organisms are oriented by their feelers or antennae by which they *feel* their way through life. It is also the primary mode of orientation to the world in organisms living underground, in fish and probably many reptiles. Tactile sensitivity operates before the appearance of other sensory processes, except perhaps the chemical sensitivity of organisms to alterations in their fluid medium (reaction to heat-cold, acidity-alkalinity), presence or absence of specific chemical substances, and later to odors. Even smell may be considered as a refined tactile response—the airborne particles impinging upon the olfactory organs.

Being such a primitive mode of reception and orientation, tactile sensitivity is of large significance in the early development of the infant, both as an embryo and as a foetus, and in the early years of life. Also, being the primary mode of infantile communication, tactile experiences are crucial in later learning, providing much of the basic experiences for develop-

[26] S. Weiss and D. Davis, "Significance of Afferent Impulses from the Skin in Mechanisms of Visceral Pain; Skin Infiltration as Useful Therapeutic Procedures," *American Journal of Medical Science*, CLXXVI (1928), 517-532.

ing symbolic recognition and response, as will be discussed later. In view of this, it is noteworthy that many theories of personality development have generally ignored or neglected tactile experiences to focus upon the sphincters and orifices—mouth, anus, urethra,[27] which, however, operate largely by tactile stimulation and the variations therein induced by experiences, largely tactile. The various orifices and sphincters, such as the mouth and lips, the anus and perineum, the genitals, the nose and eyelids, are all richly supplied with end organs for tactile reception with low thresholds normally.

II. Tactile Experiences in Personality Development

Personality development will be discussed in terms of the ways an infant organism relates himself to the world, learning to transform his organic needs and functional capacities into the patterned, purposive conduct and prescribed relationships of his group while continuing to be and to act in his idiosyncratic fashion. This approach enables us to focus upon the circular, reciprocal processes in and through which the individual carries on his incessant intercourse with the world, relating himself transactionally as an organism in a geographical, cultural, social *field*.[28] Thus the personality process may be viewed as communication in which we may observe more closely how tactile experiences provide primary modes of communication which seemingly are essential to the development of the many forms of symbolic recognition and response for later learning and maturation.

Tactual sensitivity appears early in foetal life as probably the first sensory process to become functional.[29] During uterine life the foetus more or less floats in a liquid medium, the amniotic fluid, cushioned against impacts and the at-

[27] E. Erikson, *Childhood and Society* (New York: Norton, 1950).

[28] See note 4.

[29] L. Carmichael, "Behavior During Fetal Life," *Encyclopedia of Psychology* (New York: Citadel Press, 1951); D. Hooker, *The prenatal Origin of Behavior* (Lawrence, Kansas: University of Kansas Press, 1952).

mosphere, but continually stimulated by the events of his small world.

During the nine months of gestation, the embryo and foetus are continuously receiving the rhythmic impacts of the maternal heart beat, transmitted through the amniotic fluid and therefore magnified, impinging upon the skin of the whole body. His own heart beats will later synchronize or be out of tune with the maternal heart beats and so provide either a series of coordinated or dissimilar impacts upon his skin to which he develops a continuous response, as a physiological resonance. Thus at birth the infant comes from a rhythmically pulsating environment into an atmosphere where he has to exist as a discrete organism and relate himself through a variety of modes of communication.[30] Probably the infants who are carried close to the mother on her back or hip receive some continuation of these rhythmic impacts upon the skin.

At birth the foetus passing through the birth canal undergoes a series of pressures and constrictions which involve sometimes intense tactile experiences. Moreover, the newborn is more or less suddenly exposed to the atmospheric pressures and altered temperature, evoking respiratory activity and presumably a number of tactile responses. The skin of the newborn is covered with a creamy substance which, if not interfered with, will be absorbed like a vanishing cream. Usually the newborn is bathed, dried, and often oiled, greased, or powdered.

THE INFANT'S need for contacts, for nuzzling, cuddling, patting, and his usually quick and accepting response to these tactile messages may be largely derived from his uterine experiences which have exercised his tactuality. Each infant differs in his "needs," his susceptibility, response, and in the time when he will relinquish these infantile experiences and accept alienation from close contact with the mother. Putting fingers, thumb, food, objects or parts of another person's

[30] J. A. Meerloo, "Archaic Behavior and the Communicative Act," *Psychiatric Quarterly*, XXIX (1955), 60-73.

body in the mouth is a tactual experience. It may lead to chewing and swallowing or it may be retained and used as a source of gratification. Parental care and love may be largely tactile contacts and comforting, reassuring tactile experiences which give the infant encouragement and the confidence in the world as well as physiological assistance in achieving a more effective homeostasis, especially when under stress. Thus the kind and duration of early tactile experiences wherein the infant can send and receive messages outside his body have a large significance in early personality development as his first so-called "object-relations." [31] "No new external element gives rise to perceptive, motor, or intelligent adaptation without being related to earlier activities." [32]

It is well recognized that the newborn mammal "needs" to be nuzzled and licked by the mother who, among infra-human species, performs these functions after biting the cord and often eating the placenta. The young remain close to the mother's body, receiving warmth and close tactile contacts, plus frequent licking and nursing. The human infant may receive a variety of treatments that conform to this mammalian pattern or depart drastically therefrom. Some infants are kept close to the mother, may be given the colostrum (as are infra-human babies), allowed to nurse freely and as long as desired. Other infants may be isolated from the mother, as in most hospitals, fed at intervals and given a minimum of bodily contacts. The opossum young are extreme cases of pups born prematurely who can survive only by attaching themselves to a teat and remaining there close to the mother for the time necessary for maturation. Tactile experience is immediate, and transitory, operating only as long as contact is maintained. It is also a reciprocal experience in the sense that what a person touches also touches him, and often evokes emotional reactions of greater or less magnitude.[33] Tactile

[31] W. R. Fairbairn, *An Object-Relations Theory of the Personality* (New York: Basic Books, 1954).

[32] J. Piaget, *Play, Dreams, and Imitation in Childhood* (New York: Norton, 1951).

[33] E. W. Straus, "Aesthesiology: Its Significance for the Understanding of Hallucination," *A New Orientation in Psychotherapy* (New York: Basic Books, 1957).

experience is ordinarily limited to two persons, a means to intimacy and expression of affection or hostility and anger.

In his earliest experiences, the infant has a number of tactile experiences: close bodily contacts, being cuddled or patted rhythmically, touching the lips to the mother's body and more specifically to the nipple, increasingly fingering or handling the mother, especially the breast. These experiences may be viewed as early tactile communications which are carried on as transactional processes. The infant evokes from the mother the tactile stimulation which he "needs" and to which he responds in his own individual fashion as in sucking; the mother solicits from the infant this touching and sucking, which evokes milk from the breast.[34] Babies seem to differ widely in their "needs" for tactile experiences and in their acceptance and response to tactile ministrations. They are dependent upon the mother person who may provide these generously or may deny or largely deprive the infant of these experiences. A baby may become attached to a blanket, soft cuddly animal, a rattle and begin to enjoy the tactile contacts, especially of textures. These early-found sources of satisfaction may serve as surrogates for contact with the mother's person.

IT MAY NOT be unwarranted to assume that the infant initially has a primitive tactile sensitivity and capacity for response which is acute at birth in varying degrees in individual infants and which needs to be functionally operative and fulfilled as an essential stage in his development. Denial or deprivation of these early tactile experiences may compromise his future learning, such as speech, cognition, symbolic recognition, and his capacity for more mature tactile communication, as we will discuss later. This initial or primary tactile sensitivity and need for tactile experiences may then diminish, or be incorporated in larger patterns as are the early reflexes (Babinski diminishing but retained in walking).

In these early tactile experiences we may see more clearly

[34] Erikson, *op. cit.*

how the infant begins to communicate tactually and gradually enlarges his communications as he develops his capacities for other sensory awareness and perception and for other forms of response. Here the suggestion made earlier about signals, signs, and symbols finds application since in infant development, and indeed in personality development generally, we may observe this progression from signal to sign to symbol.

The baby begins to communicate with himself by feeling his own body, exploring its shape and textures, discovering its orifices and thereby begins to establish his body image which, of course, is reinforced or often negated by pleasurable or painful tactile experiences with other human beings. It seems highly probable that the continual physiological alterations internally, some of which he has, such as colic or stomach ache or a full bladder or rectum, also enter into this evolving image of the body. Later on various visual cues may be established as he focuses his vision upon his fingers and feet and so begins to build up a visual image to supplement and to reinforce his tactile experiences.

The newborn infant with underdeveloped, inadequate capacity for homeostasis apparently requires these tactile experiences for maintaining his internal equilibrium. Thus, he keeps warm through bodily contacts. He maintains or recovers his internal equilibrium when disturbed by fear or pain (including digestive upsets—stomach ache, gas, etc.), hunger, cold, through close contacts with the mother person and rhythmic tactile stimulation, as in patting, stroking, caressing. It cannot be too strongly emphasized that the infant when disturbed emotionally [35] usually responds to patting or even vigorous, but rhythmic, slapping on the back, with increasing composure. In an older child this patting may awaken or keep him awake, but it puts an infant to sleep; this age difference offers some support for the assumption of an early

[35] What we call emotional reactions may be viewed as physiological responses to messages, usually signals, such as pain, hunger contractions, loud noises, bright light, cold, etc.; these responses exceed the usual normal range of physiological variability exhibited in moment to moment, hour to hour, day to day alterations for maintaining a dynamic, internal equilibrium (homeostasis). See note 11.

infantile sensitivity or need for rhythmic tactile stimulation which fades out or is incorporated into other patterns or becomes quiescent until puberty.

The baby responds to the signal(s) given by the nipple and the tactile contacts involved in nursing, by sucking, which is a message to the mother; thereby he allays his hunger as she responds by lactation. The combination of two or more signals thus establishes a sign so that sooner or later the infant recognizes the mother and begins to respond to her with the set or expectation for consummation through feeding.[36]

LIKEWISE, the infant is cuddled and patted by the mother when disturbed, frightened, or in pain. Usually she speaks or hums or sings to him at the same time. Thus he learns to recognize the sound of mother's voice as a sign, or surrogate for her touch. Later he may respond to her voice at a distance as a surrogate for her actual physical contact. This response becomes clear when he has learned to recognize words (although he may not be able to talk) and her reassuring words are accepted, although she is not present and touchable, as symbolic equivalents of tactile experience. Likewise, the child learns to recognize the mother's voice as a sign of her disappointment and may cringe at her harsh voice as to physical punishment which he has experienced previously when scolded or spanked. It seems clear that the child's reception of verbal message is predicated in large measure upon his prior tactile experience so that facial expressions and gestures become signs and symbols for certain kinds of tactile communications and interpersonal relations. A person, who is emotionally disturbed while holding or carrying an infant, may communicate that disturbance to the infant through tactile contacts just as a calm, relaxed person may sooth a disturbed child by holding him, with or without patting. The close, tactile contact of being held firmly apparently reassures a child.

What seems to be involved in the infant's maturation is

[36] I. Hendrick, "Early Development of the Ego: Identification in Infancy," *Psychoanalytic Quarterly*, XX (1951), 44-61.

that the primary mode of tactile communication is replaced by auditory and kinesic messages.[37] These messages are no longer signals but become signs which later become or are replaced by symbols to which the infant responds, both physiologically and symbolically.[38]

If the human child were limited to purely tactile communications, he could not fully develop his capacity for fantasy and imagination, and for building the conceptual framework required for living in a cultural world. Thus the learning of abstractions means literally developing the capacity to recognize and respond to various symbols as in words or designs which serve as surrogates for the concrete actuality of events, for the most part initially perceived tactually.[39]

The baby's initial orientation to the spatial dimensions of the world occurs through tactile explorations—feeling with hands and fingers, often with the lips, manipulating and testing out the qualities, size, shape, texture, density, etc., of whatever the infant can touch. The manipulations involve motor activities and increasingly skillful neuromuscular coördinations which are established through tactile messages that are gradually supplanted and replaced by visual cues in most children. Thus the baby's perception of the world is built upon and initially shaped by tactile experiences.[40] It is to be remembered that as in all symbolic processes, the meaning of the symbol derives from prior direct sensory awareness which may or may not be reinstated at a later time. However, as Margaret Lowenfeld has suggested, these early primary sensory experiences are increasingly overlaid by cognitive patterns of symbolic recognition and response so that they may become more or less inaccessible except through such experiences as in the World Game, finger painting, clay modeling, water play, etc., and certain esthetic experiences.[41]

[37] Birdwhistell, *op. cit.*

[38] A. H. Maslow, "The Expressive Component in Behavior," *Psychological Review,* LVI (1949), 261-272.

[39] H. Werner, *Comparative Psychology of Mental Development* (New York: Harper, 1940).

[40] L. K. Frank, "Role of Play in Personality Development," *American Journal of Orthopsychiatry,* XXV (1955).

[41] M. Lowenfeld, "World Picture of Childhood," *British Journal of Medical Psychology,* XVIII (1939), 65-101.

THE POTENCY of music, with its rhythmical patterning and varying intensities of sounds, depends in large measure upon the provision of an auditory surrogate for the primary tactile experiences in which, as discussed earlier, rhythmic patting is peculiarly effective in soothing the baby, while tickling, a recurrent, more or less rhythmic, tactile message, may evoke a cumulative response of considerable intensity, as in sex orgasm, which comes as a climax to repeated tactile messages. It has been remarked that Wagner's Liebestod is a musical version of intercourse leading to orgasm and post-coital subsidence.

The way the blind learn through tactile explorations to build up a series of schemas, if not visual images, of the world, and to develop concepts and symbol recognition and response indicates that while visual symbols often become the surrogates for tactile, nevertheless the tactile may, as in finger language, become a symbolic process for complicated and subtle communications of concepts and highly-differentiated meanings.[42] This is illustrated by the account of Helen Keller's initial learning of names, such as water, from tactile experience of running water, and the communication of that word by finger language. As Cassirer has pointed out, learning names and meanings immediately enlarges the child's world and gives him new modes of communication, even when limited to tactile communication, as with Helen Keller and Laura Bridgman.

As indicated in the section on "Cultural Patterning of Tactile Processes," one of the basic experiences of a child is learning to respect the inviolability of things, animals, places, and persons which occurs when the child becomes mobile and explores the world. This involves the curtailment and prohibition of tactile experiences, forbidding the child to touch whatever is defined by adults as inviolable (property, sacred places, forbidden objects, persons). His naïve approach to these inviting object-persons is blocked and prohibited, often with painful punishment, until they are perceived as not-touchable except when he has permission or has

[42] P. Lowenfeld, *Nature of Creative Activity* (New York: Harcourt Brace, 1939).

performed the necessary rituals, negotiations, buying, etc. Not only are these tactile experiences of crucial significance for social order, but the transformation of the child's naïve impulsive response to the world into the learned observance of inviolability, usually involves emotional disturbances, conflicts with parents and often over-learning, so that the child may become inhibited and less capable of making tactile contacts, even those which he or she may seek as occasions for interpersonal relations, as in intercourse.

HERE we see how tactile experiences undergo a second critical phase. Early, he has experienced primary tactile fulfillment or denial as a baby, and developed his idiosyncratic mode of tactile communication and its elaboration into other modes. Now he must undergo an often severe restriction upon tactile experiences in which the world around him is alienated from his touch so that he must learn to recognize almost everything by eye and ear [43] as symbols of inviolability which he must recognize, inhibiting his spontaneous impulse to touch or strike. His own body, especially the genitals, may be defined as inviolable, not to be touched under penalty of punishment. This means the child must learn to impute inviolability to what was previously accessible and thereby he is inducted into the social world of respect for property and persons and of sex morals, according to the often highly elaborate codes of custom and law. Needless to say, children may learn to observe these inviolabilities through punishment, and exhibit law-abiding conduct when watched or fearful of detection and punishment, but not develop the self-administered inhibitions for social order. Or, they undergo continual conflicts between the impulsive response to forbidden things and persons and the partially learned, but not fully accepted, prohibitions. A recognition of the basic tactile experiences in learning socially-prescribed conduct and respect for the law offers clues to the genetic study of socialization and its vicissitudes.

[43] J. Ruesch and W. Kees, *Non-Verbal Communication* (New York: Basic Books, 1956).

Tactile experiences and recognition of symbols for tactually accessible and non-accessible things and persons therefore are highly significant in the development of personality. Thus we may say that initial tactile experiences provide the basic orientation to the world and especially the physiological signals which evoke the child's naïve spontaneous responses. These are transformed, elaborated, refined, and increasingly discriminated through gestures, facial expressions, tones of voice and through language, into the most subtle modes of interpersonal communication. Indeed, the transactional processes of reciprocal, circular relations can become operative only as the child learns how to evoke, as well as to respond, through kinesics and language, and the amazing variety of ritual, ceremonies, and symbols of his group.

Tactile communications are also involved in interpersonal relations in a more direct manner, as we may observe in the infant and child. Through the earliest bodily contacts and other tactile experiences, the baby communicates in a reciprocal way, mother to baby, and baby to mother, one evoking from the other what will in turn evoke his or her response in a tactile dialectic. These experiences establish the individual's early pattern of intimacy and affection, his first interpersonal relations which apparently persist as a sort of template by which he establishes and conducts his subsequent interpersonal relations, using verbal and kinesic patterns, especially in more intimate sexual relations. The baby develops confidence in the world, trust in people, through these early tactile relations which reciprocally establish the meaning of the world for him and also his expectations and feelings toward that world.

THUS, how the baby is treated, what tactual experiences he has being bathed, clothed, tucked in bed, or in sleeping bag, how he is mothered and handled by others governs his initial tactile responses and by so much guides his subsequent learning and relationships. How the baby feels in his own skin, as treated according to the cultural patterns of his group, gives him an image of his body with feelings about it which

reflect and express such experiences.[44] He may learn to expect, to evoke, tactile contacts or be passive or anesthetic, with little or no such contacts. When one remembers the diversity of patterns of infant care, being kept close to mother's body, or isolated and left alone, being free to kick and squirm and wave his arms, to play with objects, or parts of his own body, or to be tightly swaddled or bound to a cradle board, it is evident that babies can survive under a variety of treatments. But it also seems clear that their early tactile experiences enter into and largely govern their subsequent learning and their use of patterns of communication.[45]

If the baby is limited in his tactile experiences, denied much opportunity to send or receive tactile communications, he presumably must wait until his capacity for visual and auditory recognition and reception have developed sufficiently to permit him to enter into communication with others. Thus, such a child will not only have little of the primary tactile experiences upon which to develop his sign and symbolic communication, but will be expected to rely upon more or less arbitrary visual and auditory symbols and to accept their meanings, not as experientially learned, but as prescribed by others. This suggests that while children so reared can and do learn sign and symbol recognition and response, they may be more dependent than other children upon the authority of parents who define and impose these signs and symbols. These children, also being limited in early motor activities and manipulation therefore may be more willing to abide by authoritative pronouncements or more ready to rebel.

SYMBOLS, lacking primary tactile validation, may be less clearly and less effectively established as basic codes for communication later. This offers one approach to the schizoid and schizophrenic personalities who have been unable to enter fully and effectively into the symbolic, cognitive world of ideas as accepted by others, and who are reported to be fre-

[44] L. S. Kubie, "Body Symbolization and Development of Language," *Psychoanalytic Quarterly,* III (1934), 1-15.

[45] L. K. Frank, "Genetic Psychology and its Prospects," *American Journal of Orthopsychiatry,* XXI (1951), 506-522.

quently rejected babies, or deprived of mothering. Also this may throw light upon the impairment of abstract thinking observed in children who have been separated from the mother.[46] Since living in a symbolic world of ideas and concepts is a most difficult and subtle achievement, denial or deprivation of primary tactile experiences may be revealed as crucial in the development of personalities and character structure, and also in the configuration of a culture.

One of the significant events in the development of personality has long been recognized in terms of the child's learning to distinguish between "me" and "not-me," often stated as his first "facing of reality." It seems more probable that the child's first recognition of "not-me," is of a highly specific, idiosyncratic "not-me" as contrasted with the consensual world of actuality ("reality"). The baby apparently quite early recognizes the "not-me" as *my* mother, *my* bottle, *my* crib, *my* rattle, etc., each being tactually experienced and accepted and responded to idiomatically. Only later does the child replace this idiosyncratic "not-me" with the more generalized concepts and symbols of the public consensual world of "reality." This transition occurs with and is facilitated by the use of language and the acceptance of visual and auditory surrogates or signs and symbols.

The baby's initial communication with the world being largely tactile, the early recognition of the "not-me" probably comes as these tactile signals become signs of specific meanings, namely, of "my" familiar, reassuring, comforting mother, bottle, bed, etc., from which he receives the familiar, customary tactile messages, plus the reassuring auditory and visual cues (mother's voice and face and hands) which further distinguish and establish these as signs of "my" world. Language, first as recognizable signs and then as symbols and then as verbal messages he can send, provides the conceptual framework of ideas, concepts, and expectations for living in the common public world ("reality"). This requires the gradual replacement of the idiosyncratic "not-me" by the consensual "not-

[46] W. Goldfarb, *American Journal of Orthopsychiatry*, XIV, p. 441.

me," a transition from the largely tactile to linguistic and kinesic and symbolic communications. This transition to the symbolic world and acceptance of adult concepts is not always easy for children. Some may only partially give up their idiosyncratic "not-me" and try to live on two levels of communication, while others may be unable to attain even this degree of participation in the consensual world, continuing to rely upon signals.

IT SEEMS CLEAR that only as the baby achieves some degree of internal stability (homeostasis) and develops more awareness of the external world, can he begin to shift from dependence upon tactile to linguistic communication and thereby orient himself in the symbolic-cultural world. If we view learning as essentially a process of developing new ways of relating to the world (*knowing* as a transactional relationship as Dewey and Bentley have proposed), then learning to live in a symbolic world requires a firm base of physiological functioning and an initially adequate tactile orientation to the world that can be stabilized through patterned perception guided by concepts.[47]

While babies differ in their initial threshold to tactile stimulation, the provision of tactile experiences or their denial undoubtedly will accentuate or modify these individual differences. Thus, deprivation of early tactile experiences may evoke exploratory searches for surrogates such as masturbation, finger and thumb sucking, pulling or fingering the ears, nose, hair, a variety of auto-tactilism, or as indicated, reliance upon other modes of communication. The tactilly-responsive baby, despite indulgence by parents, may seek further auto-tactile experiences to provide fulfillments. Each seeks to communicate with the world and especially people, through tactile modes if allowed (the haptic type as V. Lowenfeld has described it), and also to communicate with the self through tactile manipulations if permitted. Here it is difficult to separate the motor, kinesic patterns from the tactile except to say that these motor activities seem to be guided by a

[47] See note 5.

tactile orientation, the hands and fingers acting like antennae or feelers which probe the surroundings for ensuing motor activities.[48]

This offers a clue to the schizoid and the schizophrenic personalities who quite early in life exhibit this partial or extensive resistance to accepting the ideas and concepts of their culture, which in turn may be viewed as arising from inadequate or distorted tactile experiences early in life, such as denial of tactile experiences or inability to establish and maintain tactile communication upon which conceptualization can be built.[49] There is some evidence that speech retardation and difficulties [50] and also reading disabilities may arise from early deprivation of or confusion in tactile experiences, since such children often exhibit peculiarities of tactile sensitivity and response.[51] Also it has been found that babies separated from their mothers frequently exhibit limited capacity for abstract thinking or conceptual formulation.[52] Hence it seems probable that in the genesis of these various kinds of personalities, there may be basic tactile deprivations and confusions, and also the emotional and affective disturbances arising from lack of adequate or effective tactile reassurance and comforting in early life.

Recently Bateson [53] has suggested that the schizophrenic is unable to distinguish between different kinds of verbal messages, literal and figurative, confusing what is metaphor and what is factual. This he attributes to the ambivalent relations and especially communication with the mother who cannot genuinely love her child but cannot accept her own rejection of the child. The role of tactile communications in

[48] V. Lowenfeld, *Creative and Mental Growth* (New York: Macmillan, 1947).

[49] J. Bowlby, *Maternal Care and Mental Health* (Geneva: World Health Organization, 1951).

[50] J. L. Despert, "Emotional Aspects of Speech and Language Development," *International Journal of Psychiatry and Neurology,* CV (1941), 193-222; G. Wyatt, "The Role of Interpersonal Relations in the Acquisition of Language," (unpublished manuscript).

[51] E. Douglas, personal communication.

[52] Bowlby, *op. cit.;* Goldfarb, *op. cit.*

[53] See note 13.

early infancy may be highly significant therefore in this suggested development.

THE TACTILE stimulation of the genitals, as in masturbation (or their manipulation by adults, siblings, etc.), seems to be almost universal, but may be curbed by parents, just as the infant and child's approaches and seeking of tactile contacts may be limited or denied. The child is often alienated from the mother around five or six (regarded as the peak of the Oedipus situation) when apparently this seeking and giving of tactile contacts begins to diminish in our culture. Thus we see boys increasingly evading or being denied such tactile contacts and tactile comforting, although girls may continue to enjoy it. If there is a diminution in tactile sensitivity and experiences in middle childhood, the so-called latency period, it abruptly ceases at puberty when the pubertal boy and girl usually become avid for tactile contacts, seeking to touch and to be touched. It may be found fruitful to consider the latency period as primarily a change in tactile sensitivity which, of course, includes the genitals. However, it should not be assumed that in this latency period there is no interest or concern for sex since curiosity about sex and intercourse may be intense, while mutual and self-masturbation often takes place, and boys and girls exhibit their nude bodies to each other to satisfy their curiosity about the other sex.

In adolescence we see the increasing frequency of tactile communication, at first between members of the same sex, as boys walk together with arms on each others' shoulders, girls with arms around each others' waists, and then the first tentative heterosexual explorations of caressing, petting, "necking" and frequently attempts at intercourse. Tactile communication in adult mating, both as foreplay and in intercourse, has been elaborated and refined by some cultures into the most amazing array of erotic patterns which through a variety of tactile stimulation of various parts of the body serve to arouse, prolong, intensify, and evoke communication. Here we see tactile communication, reinforced and elaborated by motor activities and language, by concomitant stimulation, visual,

auditory, olfactory, gustatory, and the deeper muscle senses, combined to provide an organic-personality relationship which may be one of the most intense human experiences. It is, or can be, considered an esthetic experience in that there may be little or no instrumental, purposive or cognitive elements, with greater or less loss of space-time orientation. But the elementary sexual processes of the human organism may be transformed and focused into an interpersonal love relationship with an identified person to whom each is seeking to communicate, using sex not for procreation, as in the mating of a female in heat ready to be fertilized, but as "another language," [54] for interpersonal communication. Here we see how the primary tactile mode of communication, which has been largely overlaid and superseded by auditory and visual signs and symbols, is reinstated to function with elementary organic intensity, provided the individuals have not lost the capacity for communication with the self through tactile experiences.

In the development of the individual personality beginning in childhood and accelerated in adolescence, we may observe how the recognition and response to signs, as previously discussed, is elaborated into the symbolic process. But it should be emphasized that learning symbolic recognition and response for communication occurs only as the child or adolescent is indoctrinated and practiced in this by more experienced individuals who, as culture agents, define the meaning of symbols and direct the less experienced in performing the prescribed conduct responsive to those symbols.

THUS we can see the individual learning to respond, with patterns of various kinds and in different modes, tactile, kinesic, language (which are not naïve organic responses), to biological signals or their learned surrogates; further, the individual develops responses, which are uniquely human, to symbols which have been created and established as the occasions for such learned symbolic responses.

[54] J. S. Plant, *The Envelope* (New York: Commonwealth Fund, 1950).

For example, the individual may withdraw his hand when he touches fire or a hot object that serves as a *signal* to that withdrawal response, often a reflex withdrawal to pain. He may learn then to recognize the color of a hot object or its customary shape as a *sign* of its hazardous nature and thereafter avoid touching it. But when he learns to respond to the word "hot," he is acting symbolically, since his recognition of and response to that word, "hot," are not naïve biological responses but recognition of a *symbol* with appropriate response to that symbol according to what others have taught him.

This emphasis upon the cultural patterning of symbolic processes seems justified because we have recognized that symbols are cultural, but have not given equal recognition to the necessity of learning these symbols from others. Thus, various infra-human organisms can be trained to recognize and respond to symbols of a fairly wide range, but no animal ever teaches its young to recognize and respond to symbols, although they do help the young to recognize signals and some signs. This points to the uniquely human capacity for maintaining basic organic processes, including recognition of many signals, and also for superseding and replacing these primary modes of communication with signs and symbols, thereby enormously enlarging the range and subtlety of human communications, and providing for the development of the highly individualized, idiosyncratic personality processes. We can observe how each person learns to use these processes in his own way for his own purposes as he relates himself to the world and other persons. The elementary, primary modes of communication may be overlaid, superseded, and incorporated in symbolic communication but under stress, may again become regnant.

THERE IS little systematic observation of how tactile experiences and modes of communication function in the development of personality [55] and how the tactile are interrelated with the linguistic and kinesic modes where any one

[55] See note 42.

of the three may become a surrogate for one or two others, and all three may be partially or wholly superseded by visual symbols, as in the arts, especially graphical, plastic art.[56] We can begin to realize the complexity when we gain more understanding of human communication.[57] For this we need to recognize that the human child has immense potentialities which give rise to his idiosyncratic awareness and perception of the world (life space-private world), always patterned by his tradition, with a highly-idiomatic personal code for communicating, receiving, and interpreting messages from the world and from other persons.

III. Cultural Patterning of Tactile Experiences

As pointed out in the discussion of personality development, cultures differ in the kind, amount, and duration of tactile experiences people give the infant. Thus the parents in each culture activate or limit initial tactile communication with the infant and provide such tactile communication in and through the patterns and relationships which are prescribed or permitted by tradition.[58]

Since it is impossible to give an adequate statement of this cultural patterning of tactile experiences in this paper, the focus will be upon those tactile approaches and responses which seem to be more significant in human communication, remembering that at every moment the individual is communicating with the environment, receiving tactile stimuli and responding thereto more or less automatically or without awareness (e.g., pressure on sole of feet, on buttocks, changing atmospheric pressures, wind, etc.).

Thus we should note that color of skin is highly significant as a message which serves as a visual identification. While skin color is visual, it elicits responses which are often tactile, in the sense of avoiding contacts or in evoking approaches

[56] G. Kepes, *Language of Vision* (Chicago: Theobald, 1951).

[57] Vigotsky, *op. cit.*

[58] Margaret Mead and F. C. MacGregor, *Growth and Culture* (New York: Putnam, 1951).

and contacts which would be inappropriate or prohibited to a person of another skin color. Insofar as an infant may have a nurse of another skin color, and young children apparently play together with little or no awareness of differences in skin color, these discriminatory responses to skin color may be considered as patterned. But within a group of people with similar skin color, there may be degrees of acceptance and rejection, of approval and dislike, as in the light-dark skin of Negroes, the blonde versus brunette, etc.

The skin has many potentialities, some of which are actively recognized, cultivated, refined or coarsened, and selectively utilized by each culture. The exposure of the skin is the most obvious patterning of tactile experiences since the amount and kind of clothing, the covering of specific parts, genitals, breasts, face, and exposure of hands, legs, navel, etc., differ widely and may alter according to the time, place, and occasion, e.g., ceremonial appearance. Masks and headgear may also be used to disguise the skin and provide a different kind of communication according to role.

THE BODY ARTS, which include all the varied kinds of ornamenting, painting tattooing, incising, use of cosmetics generally, are significant as ways of enhancing the appearance of the skin or intensifying tactile communication where the skin and its decorations serve as messages which are then perceived visually as a sign or symbol, or sometimes as a signal to evoke a direct physiological response.

Grooming the skin, bathing of all kinds, anointing, oiling, perfuming the skin, plucking hair, shaving, are patterns for modifying communication by the skin, again relying upon visual cues to indicate tactile readiness for communication, actual or symbolic. Such grooming and decorating may also serve as signs of rank, caste, prestige, authority which others recognize and respond to with appropriate conduct. Indeed, these skin decorations and coverings are of large significance in the assumption and performance of the various roles when not only the individual assuming a role must act in a prescribed manner, but others must respond appropriately if the

role performance is to be completed. Here the skin serves like a carrier wave upon which the particular message is imposed as a modification or patterning of that wave, as in telephoning.

Thus admiring glances, indicating approval of the individual's clothing, body arts, and grooming, serve as surrogates for invitations to actual tactile contacts. This is often elaborated in the customary public exhibition of the self through which courtship is conducted openly and directly, or indirectly as in public strolling or dancing.

The masculine and feminine roles are defined in large part by these different patterns of exposure of skin, body arts, clothing, grooming, and the kinds of tactile approaches and contacts allowed or forbidden to the male and female. Since masculinity and femininity are more or less polarized positions and relations which the boy and girl must learn, each may develop a kind of complementary tactile communication in which the intent may be, not primarily to transmit a message, but to evoke a response by a variety of tactile approaches or exhibition of signs and symbols of tactile significance. If these responses are evoked, then the initiator may offer more direct tactile communication as in flirting or seduction. There is usually a well-established code for these communications, with degrees of intimacy of direct tactile contacts.

It is significant, too, that the dead may be decorated and anointed with sacramental oils, and that bathing the feet has been a traditional ceremony of hospitality to the stranger.

EACH cultural group has a conception of the skin and of tactile experiences which may not be explicitly recognized or stated, but is implied in its prescriptions for covering, exposing, decorating, making and avoiding tactile communication. Thus, modesty, in the sense of covering certain portions of the body and prohibiting or disapproving even symbolic tactile communication, with shame for violation of these prescriptions, blushing or pallor when discovered, are forms of tactile communications which serve to maintain the

social order by regulating human conduct and especially interpersonal communication.

The patterning of direct tactile communication may be considered as one of the early and most significant social inventions.[59] Among most infra-human species (apart from social insects), the individual can have and can keep his own food, lair, nesting place, etc., only by incessant vigilance, warding off intruders by force, or show of violence or by auditory signals like bird calls. Likewise, the individual organism may enjoy little or no personal safety and freedom from attack or invasion except by continual defensive-offensive activity to repel attackers. This exposure to other approach may be limited in herds or other animal aggregations where the individual is merged in the group and acts as a constituent member of the aggregate.

The establishment of inviolability of things and the person under penalties for unsanctioned approach made social order possible since each member of the group became the guardian of all others' property and person. Each child learns to respect these inviolabilities by refraining from approaching, touching, striking, taking or otherwise invading the private property or the person of others, or the sacred places or objects, always as defined by his culture. Since these inviolabilities are barriers to tactile contacts as well as motor approaches, we may consider private property and the sanctity or integrity of the person as forms of patterned tactile communication. Each object, animal, place, and person gives off a variety of cues, visual or auditory, which have become established initially through tactile contacts, or signs and symbols to which each member of the group exhibits the learned conduct of avoidance.

THESE LESSONS in recognizing and respecting the inviolability of objects and persons occur early in life when the child first explores the world, touching, taking, handling whatever he can reach. While learning this space-time

[59] L. K. Frank, "Concept of Inviolability in Culture," *American Journal of Sociology*, XXXVI (1931), 607-615.

orientation, he is blocked, diverted, often punished, with verbal admonitions to stop, "don't touch," etc. Gradually the child transforms these parental prohibitions into self-administered inhibitions by learning to perceive things and persons as signs or symbols for avoidance. His formerly eager exploratory touching is relinquished and he now responds with the prescribed conduct of avoidance when no adult is present to stop him or caution him. As he grows older, he learns to employ the group-sanctioned ceremonies, rituals, symbols for approaching persons, relying upon negotiating, barter, sale, contract, courtship, seduction, marriage, for setting aside the inviolability of the object, animal, or person with which he seeks to make direct tactile contacts or to establish tactile communication of intimacy.

Probably the most widely occurring and most rigidly maintained culture inviolability is the incest taboo which again may be violated, as we know, but is usually accepted and upheld not only by the law and threats of punishment, but by the learned conduct of avoidance that is established in the child. This incest taboo is a uniquely human cultural pattern since among infra-human mammals it does not seem to appear and in human breeding of domestic animals this taboo is deliberately violated in order to maintain certain hereditary strains.

Here we see very clearly how early tactile experiences provide the bases for transformation into learned symbolic conduct and participating in social order. It is as if the child who naïvely responds to the tactile communication received from objects and persons learns to recognize these provocative objects or persons as emitting a communication to negative action or inhibition. Instead of "come on," their message is now "don't touch me," which indicates that the child has a new awareness or altered perception of the world and has developed a pattern of conduct which is relevant and appropriate to that new perception. This is usually called repression, as if it were wholly "internalized," but obviously involves communications from things and persons. The wide array of property rights and of inviolability of persons according to

kinship, rank, caste, age, marital, occupational, and professional status may be seen as transformations or elaborations of the basic tactile communications which each culture has utilized in its own way for maintaining its traditional way of life.[60]

IT WOULD take too much time and space to do more than mention the cultural patterning of person-to-person tactile communications, such as handshake, with removal of glove, close contacts in social dancing which are not permitted elsewhere, rubbing of noses or foreheads or cheeks, clasping of arms around shoulders or waist, embracing the knees, and all the varied other tactile-motor contacts which have been established as signs or symbols for interpersonal communication. Kissing among some people has a special significance of intimacy and affection but it is prohibited by others. The laying on of hands as a ceremonial ritual for transmission of authority or of special powers and healing, such as the shaman touching of the body, the king's touch as a cure of skin diseases, are also to be noted. Then too each culture sets certain patterns of what kinds of tactile experiences, especially pain, individuals must learn to accept, such as spanking a child, slapping the face or toleration of pain in fire walking, lying on a bed of nails, gashing and scarifying the skin and genitals in initiation ceremonies or ritual performances, stoical acceptance of sharpened objects in the skin (Plains Indians), and the exposure of the skin to heat and extreme cold (Indian all face!).

Likewise it is to be remembered that the elaboration and refinement of erotic arts, as portrayed, for example, in the Kama Sutra and similar manuals, provide a variety of practices for tactile stimulation of various parts of the body, especially the genitals and erogenous zones, but also of concomitant stimuli, pressure, often painful, with rhythmic patterns designed to build up to an intense climax of orgasm, or prolonged non-consummating intercourse, such as the Karezza

[60] I. Hallowell, "The Self and the Behavioral Environment," *Culture and Experience* (Philadelphia: University Pennsylvania Press, 1955).

of the original Oneida community. Caressing and manual, digital manipulation is usually associated with intercourse.

The stimulation of the genitals either by the individual or by others may be accepted and encouraged by some groups who manipulate the infant's genitals, and prohibited by others who may punish even a baby for such activity. Communication with the self by masturbation is probably universal, but sanctioned only by some. Other forms of tactile communication with the self are exhibited in various tics, and rubbing or patting areas of skin or hair, scratching, pressing against objects and utilizing various forms of bathing. In medicine the physician usually examines the patient by touching him, exploring for tender spots, for painful areas, for the various signs of neurological disorders such as disturbed reflexes, e.g., patellar, Babinski. Therapy may involve tactile manipulation as in osteopathic treatment and physical medicine. Massage or other manipulation of the body involving tactile contacts are also frequent and may be the focus of professional practices.

EACH CULTURE fosters or specifically trains its young as children and as adolescents to develop different kinds of thresholds to tactile contacts and stimulation so that their organic, constitutional, and temperamental characteristics are accentuated or reduced. As adults they are more susceptible and vulnerable, or are anesthetic and indifferent to various kinds of tactile communications, as is evidenced by the clinical material on the number and variety of tactile idiosyncrasies, including sexual. Moreover, each culture builds upon the early tactile experience of the infant and child a more or less elaborate series of patterns of adult conduct in which tactile surrogates and symbolic fulfillments are provided.

We may say, therefore, that tactile experiences seem to be basic to many of the crucially important patterns of a culture, that tactile communication takes place on the level of signals, direct tactile stimulation, and on the level of signs and symbols which have been established as surrogates for tactile communications, both for sending and receiving. As in other

forms of communication, tactile communication is highly susceptible to interference by noise (any kind of disturbance in transmission, or confusion and conflict in sender or receiver) is peculiarly ambiguous, often redundant and liable to frequent errors in coding and decoding. Without tactile communication, interpersonal relations would be bare and largely meaningless, with a minimum of affective coloring or emotional provocation, since linguistic and much of kinetic communication are signs and symbols which become operative only by evoking some of the responses which were initially stimulated by the tactile stimuli for which these signs and symbols are surrogates. Tactile communications are largely reciprocal transactions between two persons, each of whom in responding to the other, provides the stimulus for a response to him that will in turn initiate his response in a tactile dialectic of greater or less duration. These interpersonal communications may become increasingly symbolic as individuals learn to use words and gestures for sending and receiving such messages as culturally patterned.[61]

SEVERING tactile communications, especially those which have involved intimacy, often creates a crisis for one or both participants for which some cultures provide rituals, ceremonies, and special sanctions such as legal separation or divorce, or puberty rites. Likewise, as indicated earlier, specific rituals, like betrothal and marriage, are provided in some cultures as public sanction for establishing tactile communications, while others permit premarital relations which eventually lead to marriage.

In ritual and ceremonial activities, the tactile communications play a large role, but often on a symbolic level where there is no actual tactile contact, but every action implies or indicates as in the dance some tactile communication, a threat or invitation, and its patterned response. This is apparent in much of the kinesic activity and communication and in linguistic communication where the message may originate in a

[61] Gregory Bateson and Margaret Mead, *Balinese Character* (New York: Academy of Sciences, 1941).

tactile context, be coded in verbal symbols, and decoded into tactile experiences.

The elaboration and refinement of cultures may be interpreted in part as the provision of signs and symbols as surrogates for tactile communications which, being more elementary and ambiguous, are superseded by more discriminatory symbols, just as writing offers more scope and subtlety than hieroglyphics or a rebus. Abstractions, concepts, generalizations would seem to be impossible through tactile communication, but tactile experiences transformed into signs and symbols may become abstracted and conceptualized as in finger language used by the blind, as Helen Keller has shown.

It should be emphasized that the establishment of signs and symbols has been a very difficult and often precarious undertaking. Every culture has been dependent upon gifted individuals who could perceive the world in new ways and imaginatively create the symbols which then were accepted and utilized by others. Since this is the kind of world in which many events are occurring more or less simultaneously, and every event, object, and animal appears in a context of greater or less complexity [62] that is, with many other existents, it is not at all easy or simple to recognize which particular signal belongs to or is emitted by a specific event, object, or animal to be identified. We speak of data, which literally means that which is given, but the whole history of science shows that these so-called data or signals are rarely or ever given; they must be laboriously and often painfully discovered, isolated, and established as unequivocal indicators of whatever is the focus of inquiry. Indeed, we might say that the progress of science takes place in large part through the recognition that what have been considered as valid data are not reliable and unequivocal indicators and must be replaced by other indicators that seem to be more nearly reliable signals.

IV. Pathology of Tactile Process and Experiences

Being exposed to the world, the skin is not only subject to the ever-changing impacts of the external environ-

[62] W. Weaver, "Science and Complexity," *American Science*, XXXVI (1948), 536-544.

ment, but is also continually responsive to and expressive of the ever-changing internal environment. Many of these alterations in the skin are transient, but some are persistent and exhibit the kind of disturbances and distortion that are called pathological. While the materials of dermatology are too extensive to be reviewed here, some brief account of these is desirable because these limited or prolonged alterations in the skin are involved in interpersonal relations and so enter into the processes of tactile communication.

Thus, there are many skin disorders, such as acne, rashes, boils, and carbuncles, reactions to chemicals such as poison ivy or poison oak, nettles, etc., to say nothing about such skin manifestations as leprosy, venereal disease, etc., which are not only perceived by others, but are often the focus of concern, even anxiety, for the person who displays or tries to conceal such skin disturbances. Aging of the human organism is accompanied by more or less severe alterations in the skin—drying, wrinkling, loss of tone and color, which are probably secondary or symptomatic of more pervasive bodily changes such as dehydration, nutritional, especially vitamin, deficiencies, hormone deficiencies (estrogen), circulatory impairments, etc. Impairment of the functional efficiency and integrity of the organism are often reflected or exhibited in the appearance and texture of the skin, as in digestive disorders, reactions to allergies, food, textiles, or contacts. Some of these changes shown in older individuals may occur during or after a severe illness. Whealing and similar skin disturbances may express metabolic disturbances or local irritants or emotional stress and strain. Some neurological disorders or diseases are accompanied by severe disturbances in the skin, as in shingles and tics which are recurrent muscular spasms revealed through the skin.

AMONG people who are concerned with their personal appearance and have an image of the self in which they emphasize their skin, however it may be decorated or displayed, any alterations in their skin may create tensions in interpersonal relations, a feeling of embarrassment, as shown

by adolescents suffering from acne, a feeling of anxiety, as shown by the woman who fears her skin is no longer youthful and elastic, etc. The individual person with a sharpened awareness of the condition of the skin (which may be a skin highly cosmetized and conventionally beautiful or masked with blemishes) may be so "self-conscious" of appearance as to impede or facilitate communication, depending upon the norms and expectations and persons.

Dermatological neuroses are frequent manifestations of personality problems and persistent emotional disturbances. The skin becomes the organ of expression of a variety of chronic affective responses, anxiety, guilt, resentful hostility, of shame, disgust, embarrassment, etc.[63] These may be considered as signals of distress by an organism which cannot cope with life situations, as in blushing, or has progressively elaborated earlier traumatic experiences so that they can no longer be contained.[64] Thus, skin disorders of psychosomatic nature or origin are communications, often involuntary and unintentional, which may take the form of persistent stigmata in religiously inclined mystics or blemishes or defects that come and go according to the life stresses of the individual.

Various kinds and degrees of hypersensitivity and of anesthesias, local or diffused, also may occur and serve as barriers to communication, especially to those forms of tactile communication which carry special significance and emotional coloring. Thus an individual may be extremely sensitive to any contact with another person, reacting either by rejection of such tactile experiences, or by intense emotional reaction amounting almost to panic as he or she responds involuntarily to such tactile stimulation. This sensitivity may also appear in extreme intolerance of various textures, such as scratchy, wooly materials, or in low threshold to warm or cold or to

[63] See Kubie, *op. cit.;* also M. B. Sulzberger and S. H. Zaidens, "Psychogenic Factors in Dermatological Disorders," *Medical Clinic of North America,* XXXII (1948), 669; S. H. Zaidens, "Dermatological Hypochondriasis," *Psychosomatic Medicine,* XII (1950), No. 4.

[64] A. R. Martin, "The Body's Participation in Dilemma and Anxiety Phenomena," *American Journal of Psychoanalysis,* V (1945).

pain. At the other extreme are those who may have abnormally high or low threshold to warm-cold and pain which may be symptomatic of serious neurological disorders or sometimes of hysteria, often amenable to psychotherapy.

PERHAPS the most frequent disturbances of tactile thresholds and response is in sexual functioning where there may be found the most extreme cases of hyperexcitability to tactile stimuli and equally strong anesthesias, such as in male impotence and female frigidity, when tactile stimulation will not elicit the normal physiological response. But these anesthesias and lack of response may be altered as the individual experiences similar stimuli with another sexual partner or under different circumstances, or at a later age. Here too the highly idiosyncratic life experience of the individual (whose organism has all its constitutional, temperamental, and sensory capacities and deficiencies), creates problems of interpersonal relations and of tactile communication for even those most eager to utilize the language of sex for communication of love and esteem. These difficulties are enhanced by the traditional devaluation of sex on the one hand, and its romantic over-evaluation on the other, which confronts the adolescent boy and girl with an insoluble conflict and no group-sanctioned resolution.

It may be appropriate here, under the heading of pathology, to note the variety of errors in coding and decoding tactile communications, the frequency of noise in such communications, the redundancy of efforts when the sender and/or recipient are aware of noise and especially of ambiguity and the highly variable storage of tactile memories which a tactile communication may evoke. Thus a tactile contact may evoke a response which was delayed from early childhood, awaiting an occasion for expression and, in some cases, such a response is completely irrelevant to the present occasion and the present sender of a tactile communication.

To the extent that the culturally-patterned tactile communications have lost their earlier clarity and sanction, or are mingled with those from other traditions, it is clear that con-

fusion and conflict may be engendered. Every tactile communication may become ambiguous and evoke an inappropriate or irrelevant response or be ignored when decoded by someone with another tradition. Travelers among other people are especially liable to confusion when they receive a tactile communication the meaning of which, like the pinch on the buttocks, given to attractive girls and women in Italy, they do not understand and may seriously misinterpret.

Also, it may be noted that tactile communications which accompany kinesic and linguistic communication may reinforce, negate, or otherwise alter the other communications. Thus, an effusive, verbalized welcome and outstretched arms with smiling face may be reinforced or largely negated or denied by the handshake. A cold, clammy, or sweaty palm may contradict the verbalized expression of *sang froid* and the polished gestures of the debutante.

In therapy there are numerous forms of treatment of a variety of ills and disorders of the skin, such as physical medicine and massage or rubbing of various kinds, with or without chemicals or drugs; electrical and vibratory and rhythmic applicators to the skin;[65] also varying tactile contacts, soft to vigorous pressures in psychotherapy.[66] The human body has a number of "trigger areas," localized sensitivities which, when stimulated, touch off various physiological processes.[67] Following Sechehaye's[68] suggestion for symbolic fulfillment in psychotherapy, disorders arising from denial of

[65] T. C. Kahn, "Theoretical Foundations of Audio-Visual-Tactile Rhythm Induction Therapy Experiments," *Science*, July, 1954, pp. 103-104.

[66] N. Waal, "Special Technique of Psychotherapy with an Autistic Child," in G. Kaplan (ed.), *Emotional Problems of Early Childhood* (New York: Basic Books, 1955).

[67] See Lloyd, *op. cit.;* also J. Travell and N. H. Bigelow, "Role of Somatic Trigger Areas in Pattern of Hysteria," *Psychosomatic Medicine*, IX (1947), 353-363; J. Travell and S. H. Ringler, "Relief of Cardiac Pain by Local Block of Somatic Trigger Areas," *Proceedings of Society for Experimental Biology*, LXIII, 480-482.

[68] M. A. Sechehaye, *Symbolic Realization* (New York: International University Press, 1951).

early tactile experiences may be treated by providing tactile experiences [69] that will facilitate unlearning and relinquishing neurotic patterns of childhood and learning new patterns of tactile communication and symbolic responses. Perhaps many of the personality disorders believed to stem from childhood are due to deprivation of essential tactile experiences and to the establishment of signs and symbols upon inadequate or distorted tactile experiences.

V. Research Possibilities

THERE IS NEED for a variety of further studies and, in some cases, of intensive reinvestigations of the whole range of problems associated with tactilism. Thus, there is need for more understanding of the basic neurological processes involved in order that we may gain an understanding of the varieties of tactile experience and how they are transmitted and what kinds of responses they evoke in different organ systems as well as centrally in the brain. Since the skin is being continually renewed, the question arises how much persistence and how much change takes place during this renewal process. Since there is a large accumulation of clinical material on disturbances and the pathology of the skin, it would be desirable to have a systematic study of the differences in initial tactual thresholds and their modifiability under different conditions, both of endogenous changes and of external impacts.

In the study of tactilism, the principle of indetermination should be clearly recognized since the methods used may significantly interfere with the process being explored. For example, the use of a glass rod to explore the sensitivity of the female vagina, as reported by Dr. Kinsey,[70] is in accordance with accepted laboratory, experimental procedures of presenting the same objective stimulus to each subject. But it may be questioned whether such "objective" procedures provide meaningful findings upon female tactile sensitivity

[69] H. J. Tompkins, "Veterans' Administration," New York *Times*, July 21, 1953.

[70] A. C. Kinsey et al., *Sexual Behavior in the Human Female* (Philadelphia: Saunders, 1953).

which apparently may vary widely according to the time, place, and circumstances in which such tactile experiences occur.

There is need for a more systematic delineation of tactilism from, or before, birth onwards to provide a framework for a more adequate study of personality development and to reveal the often unsuspected tactile components in individual personalities at different age periods. In such a presentation, it would be important to recognize the transitional phases or stages in tactile experience when the individual relinquishes or is required to give up the established form of tactile communication and to replace it with either another mode of tactile communication or with various surrogates and acceptance of symbolic fulfillments. The fate of tactilism in the life career of the male and of the female calls for further study to disclose the vicissitudes to which it is exposed and how the individual personality attempts to cope with these transitions. A study of tactile sensitivity and anesthesia in men and women who exhibit different proportions of maleness and femaleness would also be revealing, since it is probable that the preponderantly female organism has more all-over bodily sensitivity and lower thresholds.

There is need for careful exploration of the sensory modalities of individuals, male and female, at different age periods to discover how far there may be certain preferred modalities for communication, especially among those with personality problems and emotional disturbances. Here it would be important to discover both anesthesias and synesthesias, where individuals rely upon multisensory communications and how some individuals have learned to use a variety of non-tactile communications to stimulate or reintegrate tactile experiences as in music or sculpture and visual representations or textures.[71] The use of tactile figures of speech should be explored to reveal the extent to which we rely upon tactile experience to give meaning to linguistic symbols.

IT MAY BE fruitful to explore further how tactile experience, as in blind persons, undergoes a variety of elaborations

[71] Ruesch and Kees, *op. cit.*

and transformations, and how such direct tactile signals become signs and symbols, as in finger language. It would be especially interesting to discover how far tactile experiences gave rise to visual imagery or visual schemata in the blind, indicating the possibility that some process of induction from one cortical center to another may take place. Here it may be feasible to utilize the electro-encephalograph for parallel studies of the seeing (especially haptic persons) and of blind individuals. Also it would be illuminating to study the tactile sensitivity of the non-visualizers, as well as the visualizers, to discover how much these modes of imagery and thinking are related to tactile experiences.[72]

It may be desirable to investigate further how deprivation of tactile messages may initiate new learning at different ages and how far it may be possible to reinstate dormant or latent tactile responses in those who have become relatively anesthetic. The use of tactile communication in psychotherapy, as reported by Waal,[73] and some experimental use in this country, offers many possibilities, especially with patients who are less accessible to other modes of communication and who seem to be suffering from early tactile deprivation, as suggested earlier in this paper.

THERE IS NEED for the development of further procedures and instrumentalities, such as projective techniques, which will reveal more of an individual's tactuality. These should be intensively studied to reveal the extent that prior tactile experiences give meaning, emotional coloring and richness to linguistic communications. Likewise the use of tactile figures of speech in different languages may offer insights into different cultures and their modal character structure-personality, while a study of the historical development of tactile figures of speech and their changing meaning may give new light upon the development of a culture.

It may be desirable to focus more attention upon the various ways in which each culture recognizes and utilizes

[72] G. Walter, *The Living Brain* (New York: Norton, 1953).

[73] Waal, *op. cit.*

tactile experiences of the individual in different stages in the life career for developing its modal character-structure and maintaining its cultural-social configuration.[74] This would involve not only a recognition of denials and deprivations, indulgences and fulfillments of tactile experience, but also how the individual is expected or required to relinquish and replace these or to develop compensatory surrogates at different stages in his or her development.

It may be useful to reexamine the materials on the body arts in different cultures as forms of tactile communication and to reveal their significance in the development of character structure in that culture.

[74] Margaret Mead, "The Swaddling Hypothesis: Its Reception," *American Anthropologist*, LVI (1954), 395-409.

*GENERAL SEMANTICS: ITS PLACE IN SCIENCE**

ANATOL RAPOPORT

GENERAL SEMANTICS can be properly viewed as a component in what will one day be the Science of Man. Being primarily concerned with man's symbolic behavior, general semantics cannot be the entire science of man, because there are other aspects of man besides his use of language. Among other things, man is a physical system, an arrangement of structures and chemical processes. There is no reason why this system cannot be studied by the traditional methods of physics and chemistry. For example, the response of a bone to loads and stresses is no different from the response of any strut similarly constructed of similar materials. Chemical reactions in the stomach obey the same laws as the corresponding reactions in a test tube. The propagation of electrical impulse along a nerve can be deduced from known principles of the core conductor.

Of course, man is more than a physical system. He is also a biological organism. Even though one may believe that processes peculiar to living organisms can be deduced from known physical and chemical laws (and perhaps others yet to be discovered), nevertheless there are certain concepts peculiar to biological science which must enter in the description of any biological organism. Such organisms, for example, have a remarkable ability to keep their internal environment relatively constant. All biological organisms reproduce. Over long periods of time they evolve, predominantly through modifications which make them better adapted to their environment. In the processes of evolution, the progeny will differentiate into several hereditary lines, sometimes diverging so far from each other that only a profound familiarity with the ways of evolution leads us to infer their common origin.

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I repeat, there need not be any mystery about these peculiarities of living organisms. Many internal adjustments have already been shown to be due to the operation of homeostatic devices, more complex but in principle no different from corresponding man-made devices of this sort, such as, for example, the thermostat, which keeps the temperature of a room constant, or the automatic pilot, which keeps an airplane on course. Evolution too has been shown to be a consequence not of "creative urges" or strivings toward preconceived goals, as some philosophers would have it, but a consequence of known laws of chance operating under certain biases provided by the environment. Even reproduction, once thought to be exclusively the property of living organisms has been shown to be in principle attainable in inanimate systems organized in a certain way.

The goals of science are to see in all events the operation of a few (the fewer the better) laws, so that any event becomes a consequence of these laws and of certain conditions at hand. If this goal is attainable, there should be no discontinuity between physics and biology. Biology should view living organisms as physical systems organized in a certain way. In describing these systems, biology will always need terms, concepts, in short a language which is peculiar to it, but somewhere there ought to be a connection showing how the language of biology is derived from the simpler and therefore more fundamental language of physics.

Now in addition to being a physical system and hence subject to physical laws and a biological organism and therefore subject to biological laws, man is also a symbol-user. Therefore an analysis of symbolic behavior must also be included in a comprehensive science which treats of man, his works, and his history. Until recently, symbolic behavior, or more specifically, its results have been described in other than scientific terms. This has been the business of the humanities, which treat religions, philosophies, literature, arts, in short, almost the entire output of man's symbolic behavior. These treatments range from rhapsodic to systematic, and we thus

have a gradation if not of rigor, at least of detachment which marks the scientific approach to phenomena.

History, for example, stands on the threshold between humanities and what is called "social science." It belongs partly to the latter, because of its genuine attempts at systematic presentation and its standards of rigor in determining the authenticity of source materials; but it also belongs to the former, because the events selected for description are not selected on the basis of greater potential of scientific treatment (as this is understood in natural science) but on the basis of what the historian considers "significant." But what is "significant" in history depends only on what one has selectively perceived. Thus the cycle is closed, and the method of historical description cannot be entirely characterized by the detachment which marks a "science."

Sociology and anthropology stand somewhat closer to "science." Both have achieved a considerable amount of objectivity (freedom from preconceived notions) at least compared with the same disciplines of a century ago. Still lacking in all social science is a unifying framework in which accumulated facts would fall into proper places like pieces of a jigsaw puzzle. In the natural sciences such frameworks exist and form a scaffolding of what promises to become an enormous and perfectly harmonious edifice. The history of physics and chemistry is a history of triumphant unification. The same is now happening in biology (e.g., the union between the theory of evolution and genetics, between biophysics, biochemistry, and physiology, and lately the welding of all of these into one consistent picture of the living process).

Thus each discovery in physics, chemistry, embryology or genetics contributes to the over-all mosaic and vindicates the visionary goal of unified science.

THE FUNDAMENTAL idea of general semantics, as I understand it, is that man's symbolic behavior (from which it is generally recognized all those aspects of man emerge which have not been treated by the methods of physical and biological science) is also subject to laws. These laws will at first

appear *sui generis* (just as the biological laws had once appeared). But bye and bye they will be shown to be derivable from the particular organization of man's nervous system, and then the link between symbolic behavior (and therefore the humanities, "social science," etc.) with biological science (therefore ultimately with physical science) will have been made, and the unified framework of the Science of Man will become a reality.

I think this was the essence of Korzybski's idea. Now the analysis of *language,* certainly the most direct product of man's symbolic behavior, had proceeded independently of Korzybski's ideas. Linguistics, for example, is a full-fledged science in the sense I have described. It rests on comparatively few fundamental concepts (e.g., the phone, the phoneme, the morpheme) and has scored considerable success in uncovering remarkable regularities, evolutionary laws, etc., which can be stated in rigorous terms involving these concepts. However, *so far linguistics has been able to achieve this high status as a scientific discipline only by deliberately neglecting the connection between language as a flow of sound and its symbolic function.* Indeed, the linguists who want to include the study of meaning in linguistics are still in the minority. The majority have been so encouraged by the progress of linguistics *divorced* from any theory of meaning that they remain definitely cool toward these efforts to extend the scope of their science.

Besides linguistics, there is an analysis of language known as semantics. Semantics, unlike linguistics, puts meaning at the center of interest. But the semanticist understands meaning in a special way—as a relation between the symbol and its referent, and no more. The semantictist is concerned with how an utterance or a string of symbols maps (if it maps at all) events or relations in the real world; but the "back action," so to say, of the utterance on the utterer, the relation between the symbol and the symbol-user is of little or no concern for the semanticist.

KORZYBSKI too, like the semanticists, was profoundly interested in the relation between symbol and referent or,

as he used to say, between map and territory. But he considered this relation only a portion of the concern of general semantics. The rest of it was the relation between language and behavior, the whole gamut of man's behavior from the creation of a theory of relativity through the mutterings and the hallucinations of a schizophrenic to the horrors of Buchenwald. Korzybski believed that patterns of human behavior were reflections of acquired linguistic habits and that the link between language and behavior is to be sought in the specific modifications of neural pathways brought about by various linguistic habits.

From this hypothesis came his conclusion (or conjecture, if one wishes to de-emphasize his not entirely justified self-assurance) that behavior can be profoundly modified by the modification of linguistic habits, provided the modification goes "deep" enough to effect appropriate changes in the "semantic reactions," i.e., the neural pathways along which the input of perception and symbolic communication is presumably transformed into the output of behavior.

From the very start, Korzybski appeared as a controversial figure in the thinking world. In reviewing the controversy, it will serve our purpose to stick to the content of the ideas and to avoid the discussion of well-known accusations of crankism and cultism leveled at Korzybski and at those who take him seriously.

There were some who believed that Korzybski was restating the views of the logical positivists and also the views of the Polish School of logicians who had been developing extensions of formal (symbolic) logic to include non-aristotelian systems, for example many-valued logics. On the basis of this supposition, Korzybski was attacked for dilettantism and sensationalism. While the logical positivists (Carnap, Wittgenstein, etc.) and the Polish logicians (Tarski, Lukasiewicz, etc.) were developing their systems in rigorous, detached, and dignified language, Korzybski, it was pointed out, proclaimed himself the creator of a new synthesis, destined, according to him, to eclipse those of Aristotle and Newton and to serve as a basis of the salvation of the human race, without even fully

understanding the strict logical basis of the analysis involved.

I repeat, let us disregard the charges of megalomania and examine the content of Korzybski's ideas. Korzybski freely acknowledged his intellectual debt to the logical positivists and especially to the Polish logicians. But he went on to say that the central point of his system was not logical analysis. General semantics, he maintained, was not a deductive system but an empirical science with material content. The object of investigation, he maintained, was the human nervous system, in particular, certain characteristic events within it which he called "semantic reactions." Neurolinguistics would be an appropriate name for the science of general semantics, he said, and he expressed regret for having chosen the name "general semantics" which had led to the confusion.

IN THE LIGHT of this contention, the charges of lack of originality and of dilettantism become less relevant. It becomes relevant, however, to examine Korzybski's claims of having established an "empirical science," as he put it. If there is such a science, what does it assert? If it asserts anything, how does it obtain evidence in support of its assertions?

If we look for assertions bearing directly on the action of the human nervous system, we see at once that although such assertions were made by Korzybski rather freely, no directly relevant evidence was ever marshalled by him such as would make his conclusions compelling. Korzybski's knowledge of the nervous system was sketchy, hazy, and certainly not first hand. He has published no experimental results, which could bear the critical scrutiny of men who had extensive and direct knowledge of these matters. Indeed to this day, to my knowledge, next to nothing is known about how the nervous system actually functions in response to symbolic stimuli (although there is considerable experience accumulated about man's symbolic behavior on the gross observable level). Hence neurolinguistics is still only a map, not a territory, and an obscure map at that.

True, the construction of accurate maps of this sort does flourish, but in another field. In the branch of modern tech-

nology dealing with automata (for example, electronic digital computers) there is an extensive theory concerned with the "nervous systems" of these "thinking machines." This theory is used by automaton, automation, and communication engineers with telling success. But so far any drawing of parallels between these devices and living nervous systems is strictly in the realm of analogy. The analogy is suggestive, heuristically valuable and full of promise, but it is not in any sense the basis of an empirical science. Therefore this portion of Korzybski's claim must be dismissed. He may have prophesied an empirical science of neurolinguistics, might have inspired some workers to start investigations which may lead to it. But he has made no substantive contribution to such a science nor laid any foundations of it.

There is, however, another approach to a science of neurolinguistics besides the direct one of investigating the actual interaction of neurons. The approach is well known to behaviorist psychologists, who simply relegate all neural activity to a "black box," the events inside which are to be inferred from observing relations between "inputs" and "outputs." Korzybski proposed a method of "training" the nervous system to respond "sanely" to perceptions and particularly to symbolic stimuli. His definition of sanity is linked with an accurate correspondence between the "map" (roughly a linguistic picture of the world inside one's head) and the "territory," i.e., the actual world. Implicit in this definition is, of course, a faith that there is a territory outside one's head and that it has an intelligible structure. Moreover, there is implicit in this definition a value system, namely, that it is man's business to construct accurate maps, that an accurate map is more valuable than a beautiful map or a map which is kept because it had belonged to one's ancestors.

In essence, this is also the faith and the value system implicit in science. Its acceptance or rejection depends on one's emotional commitments. Since my remarks are addressed primarily to the scientific community and to those who take the goals of science to be the goals of man, I assume that this orientation is accepted. It appears, then, that Korzybski, having

defined sanity explicitly and in accordance with the scientific ideal, proposed to test his neurolinguistic conjectures by applying to human beings certain methods of psychotherapy or psychoprophylactics based on his conjectures concerning the action of the nervous system. In this program is incorporated his use of the so-called extensional devices, "dating," "indexing," manipulation of the structural differential, etc.

ALL THIS has a strong Pavlovian flavor. Energetic opposition to these methods has been voiced by those (and they are in the overwhelming majority in the United States) who reject Pavlovian methods in psychotherapy *in toto*. Indeed in the United States, "depth" psychology has come to be an intellectual antithesis of behavioristic and Pavlovian psychology, for reasons which I will not here discuss.

One might think that Korzybski's notions of psychotherapy would receive a more sympathetic hearing in the Communist world, particularly in the U.S.S.R., where Pavlovian psychology and its applications to psychiatry are *de rigueur*. However, Korzybski has forever damned himself from the point of view of dialectical materialist dogma by his kinship with the logical positivists. The vilification of his name by Soviet philosophers is rivaled only by Lenin's invectives against Ernst Mach fifty years ago on similar grounds.

Again, reactions aside, let us look at Korzybski's results. Again there are none. In this respect, perhaps, Korzybski fares no better and no worse than the proponents of many other psychotherapeutic theories. It is difficult to find any scientific corroboration or refutation of any of them. All of them are largely in the realm of speculation. At best contributions of psychiatric theory are to the art of healing rather than to any science, whose findings are rigorously supported by evidence.

An evaluation of general semantic techniques of psychotherapy is even more difficult than that of other methods, because of the paucity of any kind of evidence, good or bad. Psychiatrists with specific general semantics orientation are few, and even with them it is not certain whether they actually employ the techniques recommended by Korzybski.

We see, then, that neurolinguistics is not yet; general semantics psychotherapy never got off the ground. What remains of an "empirical science"? A very considerable portion of general semantics does remain which is amenable to scientific validation, and it is this largely projected program of validation which I want to discuss. I am speaking of the Sapir-Whorf-Korzybski hypothesis. The hypothesis was stated in philosophical rather than scientifically testable terms, but it has the virtue of suggestiveness. That is, it has led some to attempt a translation of the hypothesis into terms which are capable of scientific validation. In the process of translation the grand conception of the hypothesis was, I am afraid, lost, but this is the price that usually has to be paid when a grand conception is translated so that its concrete manifestations can be observed.

Perhaps the most incisive formulation of the hypothesis was by Whorf, whose interests were in cultural anthropology. Whorf assumed that the various large "phyla" of language systems (e.g., the Indo-European, the Sino-Tibetan, the families of North American Indian languages, etc.) are characterized by certain structures. These structures can be partially described in terms of grammatical categories and their relative importance. For example, the subject-predicate form of assertion is typical in Indo-European languages. Also the verbs in these languages have tenses. They have "moods" too, but these are not nearly so well developed as the tenses. Next, Whorf supposed that the grammatical peculiarities of a language (really a whole family of languages, because within each family these peculiarities differ but little) *impose* certain patterns of perception, cognition, reasoning, etc., on the user of the language.

To take an example cited by Whorf, a Hopi applies the concept of number to objects (i.e., he can count objects) but not to days (he does not count days). A Hopi views a succession of days as the "same" day returning successively, and so he would not think of "five days" any more than we would think of five persons in connection with some one who came and went five times. To cite another example, to us colors are

"attributes" of objects, but in certain languages of Indo-China, colors are verbs. Incidentally, this variation is found in some Indo-European languages. In Russian it is proper to say "A sail 'whitens' in the distance" or "The sky 'blues' through the trees." In English too, colors are sometimes verbs, e.g., "to blush."

Now according to Whorf, the grammatical peculiarities are not just innocent variations. The Whorf hypothesis, anticipated by Sapir and applied to questions of mental hygiene by Korzybski, states that "our language does our thinking for us." That is to say, the structure of our language delimits the range of concepts which one can formulate or even understand and colors our perception. We actually *see* things as we do because of what we tell ourselves about them.

In the formulations of Sapir and Whorf, the hypothesis applies to the subject matter of anthropology. The ideas, perceptions, and metaphysics of the whole culture is supposedly determined (or at least strongly influenced) by the language structure peculiar to it. But in Korzybski's formulation, the hypothesis is applicable to the individual. The individual's own specific linguistic habits are supposed to color his perceptions, attitudes, and behavior. While it is all but impossible to perform laboratory experiments on whole cultures, experiments on individuals are feasible. Indeed Korzybski's therapeutic techniques could be viewed as attempts to perform experiments on individuals. That these techniques failed to bear scientific fruit is a consequence, I think of their intimate linkage to emotionally charged situations and of Korzybski's prior commitment to the results he thought he would get. The therapeutic situation is not a good experimental situation.

But if these experiments are designed as laboratory experiments, i.e., generally cast in an emotionally neutral atmosphere, separated from the urgency of psychotherapy, and performed by competent workers, well versed in experimental techniques and in evaluating experimental results, and most important, uncommitted to expectations of results one way or another, there is no reason why the hypothesis should not be subjected to experimental verification in this context.

THERE IS now a hybrid discipline known as psycho-linguistics. Note that it is not called neurolinguistics, as Korzybski ambitiously called the method of general semantics. The term psycho-linguistics reflects a cross between the methods of linguistics and those of experimental psychology. The actual nervous system still remains inaccessible to observations which would establish the connection between symbolic behavior and neural processes. In a way, however, psycho-linguistics begins to look like a discipline whose methods may be applied to experimental testing of the ideas immanent in general semantics, at least on the gross behavioral level. For the program of psycho-linguistics is to study language *as behavior* (in contra-distinction to linguistics which studies language *per se*); meaning is quite central in psycho-linguistics (again in contrast to pure linguistics); the language user likewise (in contrast to pure semantics); finally the hypothesis that overt behavior or perception can be altered by manipulating linguistic behavior is a respectable hypothesis in psycho-linguistics, and it is, of course, essentially a general semantics hypothesis.

Note again that the grand conception has been temporarily abandoned. There is still no way to demonstrate the large scale effects of linguistic structure (to derive a culture's philosophy or its science or its ethics from its language). But the scientist's point of view is usually that it is better to demonstrate something rigorously in a "trivial" situation than to depend entirely on arm-chair analysis on a grand scale. The idea is to get a foothold. Once we learn how to make proper observations, impose proper controls, once we corroborate certain specific hypotheses and refute others through experiment, we may use this experience to attack more serious problems and situations, closer to real life than the contrived laboratory set ups.

I SHALL now describe an experiment which has been designed (but not yet performed) with the specific object of testing the Sapir-Whorf-Korzybski hypothesis in a narrowly circumscribed situation. The experiment is part of a larger program in psycho-linguistics being carried out at the Mental Health Research Institute at the University of Michigan. The

program has been partially financed by a grant-in-aid of the International Society for General Semantics.

Consider a micro-language consisting of only 9 words. Three of these will be used as subjects of sentences. (In what follows we will refer to them as "actor" words to avoid confusion with the subjects on whom the experiment is to be performed.) Three words will serve as verbs, and three as objects. The words themselves are nonsense syllables, compounded from English phonemes. Examples are "dus," "sawb," and "jeeth." There are therefore 27 sentences that can be formed in this language. A vocabulary, however, is not yet a language. A language must also have a grammar. In our experiment a "grammar" is simply a rule which fixes the order of the actor, the verb, and the object. There are therefore six possible grammars. In other words there are six "languages," all having the same vocabulary but each a different grammar.

Let now six different groups of subjects learn the six languages respectively. They learn the way a child presumably learns, by associating sentences with situations. Specifically, our three actors words may refer to a nurse, a waitress, and a child. The three verb words may refer to kiss, chase, and hit, and the three object words to soldier, sailor, and fireman. A sentence, say "Nurse kiss soldier" is pronounced in the micro-language, while the appropriate picture (whose meaning should be entirely clear) is presented, and so through all possible situations and grammars. Some subjects will learn a language in which the grammatical order is the same as in English (actor-verb-object) while others will learn a "different" language, where, for example, the correct order is verb-actor-object, so that the situation above is verbalized as "kiss nurse soldier." In still another language, the order may be object-verb-actor, so that the sentence "soldier kiss nurse" actually refers to nurse kissing a soldier. (The kissing being always on the cheek, its direction is unmistakable in the picture.)

The first question we can immediately ask and answer by a statistical analysis of the results is this: "Will the language whose grammatical order corresponds to that of English be learned faster (on the average) than the 'exotic' languages?"

If positive results are obtained, this is interesting from the point of view of learning theory as it applies to linguistics, but this question still does not strike at the heart of our hypothesis.

For the hypothesis goes beyond language behavior to "concept formation." Now "actor," "the act," and "the one acted upon" are certainly concepts. They represent a way of "slicing the universe" as Benjamin Lee Whorf once picturesquely put it. And of course this particular way of slicing is not the only way. It is simply the way suggested by the Indo-European language structure. Pushing this conjecture as far as it will go, one might even guess that this structure prescribes that in any situation the notion of "actor" be formed first (because the subject usually comes first in a sentence); next the act; next the object.

Instead of a subject learning one language, now let him learn a set of sentences from all six languages, so that in some the actor is first, in some the verb, in some the object. The order will now be confounded. If the subject carries around in his head the supposed built-in Indo-European "logic" in which the actor is the "star" of the situation, he ought, when confronted with a pictured situation *identify* the actor first. If this is true, then there will be a definite gradation in the way the nine words in the various sentences are learned. The subjects of the sentences *in whatever position they occur* will be learned quickest, then, perhaps, the verbs, then the objects. The confounding of the order will serve to "wash out" any effects commonly observed in learning situations where the position of a symbol in a code to be learned markedly affects the rate at which its learning proceeds. All the words will occur in all the positions. The question is whether the concepts of "actor," "verb," "object" will impose an order in which the corresponding words will be learned.*

* We do not know, of course, whether the subject's own grammar will impose the *specific* order actor-verb-object in the way the concepts are formed. But a weaker result would also be informative. Suppose, for example, the order of concept formation for English speaking subjects is *consistently* verb-actor-object. This too is interesting. In what follows we raise the question of whether the "natural" order of concept formation can be distorted by certain types of linguistic training.

A POSITIVE result in this context can be interpreted as a corroboration of the Whorf hypothesis. But we need not stop there. Note that the actors and objects of our microlanguages are interchangeable. We may wish to avoid the emotionally charged situations where a man hits a woman or kisses a man. All the others are "acceptable" in our culture in the proper contexts. Men may hit men. A woman and a child may kiss every one. A child may be hit, if the hitting is done on the rear. A woman may be pictured hitting a man with a rolling pin (this is "humor"), etc. There is hardly any need to point out that in being thus guided by cultural prejudices we are not conforming simply because of our deference to social niceties but because we do not wish any situation to stand out too much and so possibly introduce sharp irregularities into the learning curve.

In a situation where the actor and object are interchangeable, we may, with luck, get a stronger corroboration of our hypothesis. We will get it if we can show the *same* word is learned more quickly when it represents an actor than when it represents an object of an act.

However, we need not be satisfied even with this result (if we obtain it). We can go on to the "clincher." Let now a subject learn an "exotic" language thoroughly. That is, he will be able to say the sentences associated with a variety of pictures accurately and without deliberation. This exotic language will have a richer vocabulary than the languages in our experiment and also an outlandish grammar, say verb-object-actor. The idea is for the subject to "internalize" this grammar. He will have internalized it, if he carries over the grammar of that language to the experimental situation described above. In other words, if this subject, who now is used to thinking in verb-object-actor order when faced with our nonsense syllable language, actually learns the *verb* first in the experimental situation where now the grammatical structure is *confounded* (recall that the verb may occur in any position in the experiment), we shall have succeeded in "kicking" the dependent variable (order of concept formation) by manipulating the independent variable (the internalized grammar), speaking

in the vernacular of the laboratory. This effect (if we can get it) would be a still stronger result and can be quite comfortably exhibited as evidence for the Whorf hypothesis. It may be pointed out that this result will be extremely difficult, perhaps impossible, to obtain, because the micro-language learned in a few weeks (according to estimates from similar experiments on artificial languages) will have to "compete" with the life-long experience with English. This may very well be, and in this case the results will be inconclusive (not a refutation of the hypothesis, because the expected Indo-European order of concept formation will still indicate the dependence of concept formation on syntax). But one may hope that the situation itself will contribute to the loosening of the Indo-European prejudice, i.e., will elicit in the subject a "set" appropriate for seeking and understanding an artificial language where the grammar may be anything. On the other hand, we may find that in some subjects this "cosmopolitization" occurs, and in some it does not, in which case the interest will shift to psychological correlates from which such a difference can be predicted.

I SHOULD LIKE to emphasize the modesty of scope of experiments such as the one described. Certainly no results, no matter how dramatic, will suffice to either "prove" or "disprove" the conjectures of either Whorf or Korzybski. What this and similar experiments propose to do is to translate these conjectures into extensionally testable situations. The effect is meant to be cumulative. Many more such experiments should be designed and executed, preferably based on hypotheses which flow from previous experiments as unanswered questions. Another task, properly one for the general semantics scholar, is to gather such pertinent results as they appear in the literature, arrange them in some logically sequential order, compare the findings, and indicate to what extent the principles of general semantics, as they are usually stated, are corroborated, refuted, or left inconclusive.

I am not too well acquainted with the literature of psycholinguistics and related experimental psychology, but I do

know of several examples highly pertinent to general semantics theory. There are, for example, the studies of H. N. Peters, comparing tendencies to associate higher or lower order abstractions with words presented as stimuli, in which there was an interesting finding that the tendency is significantly higher to associate with higher order abstractions among mental patients as compared with "normal" subjects. There is a study by E. H. Lenneberg, highly relevant to the Whorf hypothesis, showing how the presence or absence in a language of discriminatory terms for colors influences the actual discrimination (for example, where terms for different shades of the "same" hue are present, perceptual differentiation is sharper than where they are not).

There are also studies of J. R. Stroop highly suggestive of interpersonal differences in extensional vs. intensional orientation. They are based on the following experiment. The subject is presented with a color, which he is to name as quickly as possible. The time of response establishes his basic reaction time. Then he is presented with colors associated with printed labels which do not correspond to the colors (say the color red is presented with the label "green"). In one task he is to name the color; in another he is to read the label. In both tasks there is interference. The word is in dissonance with what it names. Question: which interference is stronger? Is it more difficult to read "green," when looking at red, or to name red when looking at the word "green"? Results show that there are two kinds of people; in some the extensional experience "dominates"; in others the label. So far, to my knowledge, this interesting result has gone largely unnoticed, because no psychological correlates have been found on which this difference could be "hung." That is, the question "so what?" has not been answered. This does not mean, of course, that it will stay unanswered. One must look. The question is where to look. Here is where the conjectures of general semantics might come in handy. They may indicate the kind of psychological correlates one might expect to go with extensional and intensional biases respectively.

THE FIRST popularization of general semantics was Stuart Chase's *The Tyranny of Words* (1938). Since then there was no end of examples of how what we call a thing influences our attitudes toward it. These effects are easy to trace, since each word has a broad penumbra of connotations. There may be, however, a more subtle tyranny than the tyranny of the vocabulary. Not only choice of words (which we are more or less free to vary) influences our attitudes but also the metaphysics inherent in our grammar. Whorf has felt this quite strongly, and Korzybski concentrated on exposing the irresistible influence of the verb "to be" in the formation of our perceptions, notions, and attitudes. It is high time to put these conjectures to experimental tests. I feel for example, as Hayakawa does, that the transitive form of many of our verbs does much of our thinking for us. Thus the grammatical form of "A insults B" indicates that A is the actor and B the object. The implicit conclusion is that A in insulting B does something to B. The effect on A tends to be neglected, as is the fact that B may be impervious to insult. Similarly, we speak of country A "defeating" country B. Conquest is supposed to be something that the conqueror does to the conquered. Much of our foreign policy is determined by a preoccupation of what will be "done to us" if we are "weak" and with what "we can do to them" if we are strong. There is not much consideration of what happens to someone who is strong, who believes in strength, who lives by the sword.

The implicit idea that in every event there is an active actor and a passive object seems to pervade this sort of thinking. The much more relevant analogy from elementary physics (to every action there is an equal and opposite reaction) belies the existence of "actors" and "objects" in the universe. The events of physics are relations *between* entities. The recent trend called transactional psychology emphasizes this aspect of human events. The semantics of science is an opportunity to transcend and thus to escape from the tyranny of the semantics of every day speech, the tyranny of common sense.

There was a story told during the German occupation of France which, although indelicate, is superbly revealing of the

operation of the Sapir-Whorf-Korzybski hypothesis in the role of sexual behavior. A Prussian officer addressed the Parisian prostitute who thought she was doing her utmost to please him in these stern words: "Fräulein, who do you think is having this intercourse, anyway, you or I?"

The story loses much of its force, because the key transitive verb in the situation is unprintable.

WHAT IS THE PLACE of general semantics in science? Its great interest to me consists in the fact that it may contribute a framework and the mortar in the construction of a Science of Man. (There are, of course, other formulations which have so far mostly remained on the philosophical, conjectural, at best clinical, level, e.g., psychoanalysis.) The bricks must, of course, be facts. But these facts must be put in the proper places, and this can be done only if a framework exists. We are meeting here in Mexico City, under the distinguished auspices of our host institution, Mexico City College, because we believe that the particular framework contributed by general semantics is essential in giving us deeper insights into the symbolic process.

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PSYCHOTHERAPY AND THE PARADOX OF THE ESTHETIC

CLYDE E. CURRAN *

As CLINICIANS in psychology have concerned themselves with healing, they have moved into terrain that for hundreds of years has belonged to the dramatist and poet, namely, the esthetic as the esthetic permeates the life of a person while he strives to become a *human* being. While poets and dramatists express their observations of the struggle of the human spirit through art forms, giving them the directness and concreteness these media provide, the clinician's commitments to science make it necessary for him to deal in verbal abstractions. His reports must bow to the tenets of literal statement. What he refers to, however—a person wrestling with himself—has traditionally been the subject matter for literary art. Unless he walks a tight line between the abstract (the proposition) and the concrete (his client's travail as experienced), there is danger he will do an injustice to either the scientific or the poetic side of his calling.

A psychological clinician, at the time he administers therapy, becomes a poet. For all his medical training with its precise, hygienic aura, if he will establish an effective therapeutic relationship, he will also embrace the poets' realm—will understand his client as a unique individual. Awareness of his patient is direct, immediate, concrete, and often dramatic in quality. In short, while engaged in therapy, he is involved in a creative act, an act of predominantly esthetic dimensions. No small part of this awareness depends upon what the psychologist brings to the interview by way of his personal sensitivities. In this regard he moves upon

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ground common to the poet and dramatist. As scientist, however, he is charged with the responsibility of accuracy in observation, prognosis, reporting, and verification. Primarily the clinician is an artist, but an artist who, because of the influence of science upon the tradition within which he works, must heed the laws of experimentation and logic. In serving his two masters, the poetic and scientific, he comes upon an enigma with which some literary critics have struggled.

Scientific Criticism and the Esthetic Experience

CERTAINLY not all criticism is scientific (especially the "New Criticism"), but when the critic assumes the role of scientist, as some do, he, along with clinicians, straddles two apparently unreconcilable forces: science and esthetics. The scientific critic objectively analyzes literary works. He encounters no difficulty when he weighs a particular work against a conceptual model he has spelled out to the reader. Such an analysis may suffer from superficialities or may have the fine qualities of a work of art in its own right. The principal criterion for excellence in scientific criticism, however, is not literary but scientific. The critic must pay the strictest attention to logic. Here consistency becomes the ruling principle. He applies dehumanized techniques to humanistic subject matter. As long as he stays within the fence science has imposed upon him, he can pursue his critical enterprise with serene exactitude. The critic gets into trouble when he realizes, and resents the fact, that the application of his best tool (logic) makes it necessary to leave out what is essential to literary art—the esthetic experience.

If he is conversant with contemporary phenomenology, he "knows" that the esthetic comes into existence at the time an observer (a reader of a particular work) comes into contact with the material read. The esthetic exists, not in some embodied form in the work of art, but in the act of experiencing the work esthetically. Such an experience is creative, depending as much upon the individual having the experience as it does upon the object of art. The only legitimate (in the sense of scientific legitimacy) way he can analyze the

esthetic is through studying people having esthetic experiences. Of course he will never know whether or not a designated person is experiencing esthetically. The best data available would be statements from people who are supposed to be having esthetic experiences. These are unreliable. Perhaps the most significant reason for their unreliability is that at the time the esthetic is undergone, the person having the experience is not aware of its quality. When one is completely engrossed in what he does, a necessary condition to an esthetic experience, he is not aware of his engrossment. Thus the critic's information would be drawn from the memory of persons who are supposed to have had esthetic experiences. Moreover, if he should undertake a factual study of the esthetic, he would function as an experimental psychologist and not as a critic.

He has learned, by turning over in his mind the preceding argument, to live with the distressing fact that his logical commentaries upon literary art will always be, in relation to esthetic profundities (the soul of art), secondary, if not trivial. If he faces up to the dilemma science has forced upon him, I believe he would have to admit that his work has only a limited purpose. It has that purpose (discounting, of course, its effect in swaying public opinion) and only that purpose which is available to science. He may place a work of art in a particular historical period, showing the various relationships it has to that period or to other periods. Or he may evaluate this literary object making use of the criteria he brings to the object. It can be said that he has made a contribution to knowledge. If the question, "Knowledge for what?" is asked, I am afraid he must answer: "Knowledge supported by and in support of an interrelated system of concepts, which, when they are assessed in their pure form, are subject to correction (additions or subtractions) only by application of the principle of contradiction."

Even if he turns out material that is artistic in its own right, the most he can hope for (in addition to the contribution he has made to knowledge) is that someone will enjoy (esthetically appreciate) what he has done. Such appreci-

ations, at the time they are had, being non-conceptual and at the time they are experienced impossible to conceptualize without destroying the appreciative act, are meaningless.

The Psychotherapist's Semantic Plight

THIS ALSO is the seeming plight of the psychological clinician. As poet (one who understands his client) he finds himself at odds with his scientific commitments. He, as in the case of the literary critic, has discovered the limitations of science. What is the nature of this discovery? Since science, in order to meet the demands of experimentation and exact statement, must be separated from metaphysics, purpose, in an inclusive sense, must also be eliminated. Scientists must confine themselves to the analysis of phenomena which will lend themselves to the instrumentalities science has devised. This discovery places the clinician within the same enigma that bothers the critic. Regardless of how accurate he is in reporting his findings, he must omit what is essential to his job: his awareness of his client. While he readily sees that his patient's struggle is ontological, concerned as it is with the patient's struggle for becoming a human being, this revelation, being poetic, must remain hidden. The intuitive nature of this revelation defies meaningful (literal) statement. Anything he may say will do violence to either his insight or science.

Still another facet of the clinician's puzzle comes out when the term "esthetic," as he sometimes uses it, is examined. Although the clinician makes a statement that conveys no literal meaning when he declares an esthetic quality prevails during successful therapeutic interviews (certainly in his guarded moments he realizes this), unless he is alert, he may think he has said something. Even worse, those who listen to him may think he has said something.

An observer concealed in the wall of the clinician's office might say he saw the psychologist engage in behavior which betrayed his (the therapist's) esthetic feelings. I am afraid the observer would be in the same predicament as the literary critic who attempts to assess the esthetic qualities of a work

of art, but finds it impossible to verify personal interpretations. Calling an observed concrete experience "esthetic," when loosely translated into the implied act involved, transposes the individual who does the designating, into the position of objective observer. For the moment, the user of the term, although he may be far from the perceived act at the time he makes his statement, becomes the hidden observer. Like the critic who called an object "esthetic," he finds himself in the position of advancing a factual declaration for which he has insufficient supporting data.

TURNING NOW to the clinician working, at the time he works, if he is absorbed in the task, he is not and cannot be aware of the esthetic qualities, which after the fact he attributes to his experience. At this time he is identified with what he does. While he is sharply aware, he is not aware of being aware. Nor is he aware of the emotional tone of the experience insofar as he is thoroughly involved in the therapeutic process. Yet when the clinician talks about his experience, an obligation he must meet if he performs his duty as scientist, and in his talk (writing) he uses the word "esthetic," he pretends to be aware of being aware. As he uses the term he automatically takes the role (perhaps not consciously) of detached observer, shifting his attention to himself in the act of interviewing. To be more accurate, he shifts his attention to the afterglow created by the interview situation, not as this exists in his feelings at the time he undergoes the experience, but as it is recalled.

In his role as detached observer and reporter (on himself), he suffers from having available only the leanest kind of data. And this, upon careful examination, he realizes is drawn from memory, not the concrete act he undertakes to describe. Hence the term "esthetic," as descriptive of the revealing quality in a person-to-person relationship, when used by the clinician, suffers from all the inaccuracies inherent in the outside observer's use of the term, coupled with the additional frailty of pointing to data conjured up from past personal experience. This case suggests a conclusion which, upon first

impression, seems to be entirely self-defeating. Anything the clinician may say about the concrete act of becoming aware of his patient will suffer from irrelevance or, if he should use the term "esthetic," will be meaningless.

THERE IS a way out of this apparently impossible bind—a gate so wide in proportions that the bigness of the space created by this opening gives it the deceptive appearance of solidity. Perhaps this is why so many clinicians or critics or others who become entangled in the problem of existence—not as an intellectual exercise, but as a concrete travail—do not see the way. Let me hasten to add that those who proclaim the often-heard sentiment which denies the dualism between the esthetic and the scientific, are incorrect. A scientific critic dares not consciously encompass the esthetic (as experienced) in his criticism unless he wishes to forfeit objectivity, thus sacrificing his responsibility as critic. Similarly, the clinician who advances personal interpretations as fact—poetic sentiments as propositions—earns the rebukes of his colleagues. Yes, the dualism is real simply because, on the one hand, the overpowering influence of convention, as convention determines the meaning of words, prevents the particular person concerned, whether clinician or critic, from talking about, in a meaningful way, the reality (the esthetic quality) he experiences in his work; and on the other, the reality he experiences, being meaningless, even if language is refined to a precise science, will elude the confines of definition. The way out becomes apparent when the clinician or critic or others realize that what they experience while they undergo the heightened, intensified, creative act, is indeed Reality. *The full impact of this realization strikes home when they come to understand that such experiences are meaningless, purposeless—they just are.*

This insight would cause no particular stir if for generations most western thinkers had not equated reality with purpose—with the very ends of existence. Furthermore, most every system of western thought, in one way or another, ties ends to reason. While the intuitions of clinicians and critics

do not challenge the relationship between ends and reason (indeed they seem to indicate that reason cannot function unless purpose is present), they suggest that neither ends nor reason have a direct bearing upon Reality.

Science and the Esthetic Experience

The dualism underlying science and the esthetic, at this point in the discussion, takes a more definite shape. While the reflective apparatus cannot operate unless purposes are determined, the purposes appropriate to science, when science is refined into a system of logical principles, have only accidental bearing upon reality as reality comes into the experience of individuals. Science, in the hands of scientists who concern themselves with precise statement, has moved in the direction of an almost single-minded interest in ordering symbolic relationships. The "values" inherent in such work are the "values" suitable to the important but limited task, which because of its nature must confine itself to the dictates of the law of consistency. Even an informal Deweyan logic, although derived from a description of thought processes as they emerge from the crude realities of the everyday world, does not and cannot violate this law and remain logical. In order that science may fulfill its expectations with regard to saying something meaningful (science in the sense used here has a history of about three thousand years), it has been detached from the existential—from the realm where people experience their satisfactions, realize their values.

Recent studies in perception show that any activity, even science, suffers from subjectivity (the unconscious workings of the psycho-physiological organism). Thus the term "subjective-objective" has appropriateness in reference to even the most detached reportings of scientists. Granting the human (subjective) nature of the scientific enterprise, the objectives which sustain it have become, insofar as this is possible, dehumanized (objectified)—stripped of values as values emanate from the esthetic experience. This inevitable development in science would cause no particular alarm, if many scientists as well as laymen had not gradually realized that thinking, as it

is done in science and as it ties the rational to the purposeful, seems to give us the best, as yet, manifestation of our reasoning potentiality.

If reasoning is taken as the definitive expression of the highest development of man, a commitment supported by many western thinkers, then we are forced to admit that what we have taken to be characteristic of man at his best omits values. Thus the conclusion follows that man-the-rational-being fulfills his potentiality (a destiny indicated by the laws of science and one which must inevitably follow if these postulates are consistently maintained) at the expense of man-the-esthetic-being.

Science and the Destiny of Man

BEFORE going into the other side of the dualism (the other side has been referred to as "reality" and "the existential"), it is necessary to clear up the possible misconception the preceding discussion of science may have caused. Joseph Wood Krutch (*The Measure of Man*) speaks against science when science is held up as a tool which can decide the destiny of man. He argues that the truth or falsity of the idea (science can decide the destiny of man) tends to be outweighed by the fact that so many moderns believe in it and act upon it. Hence they bring into existence, by their actions, behavior which discounts what reasoning ability human beings possess. Action upon the idea brings about pragmatic accent to it. Such accent tends to crush the values usually associated with reason and morality. It is my opinion that Krutch develops a somber but significant point. He is one of the several spokesmen who are fighting against a recent upsurging of a "philosophy of doom" which depicts people as mute servants to uncontrolled social powers combined with unconscious internal pressures.

The discussion, up to this point, may appear to affirm Krutch's thesis. Such is not the case. Although I find many of Krutch's arguments agreeable, he devotes himself to a different problem from the one presented here. Because science is looked upon as having limitations, or as involving clinicians in seemingly hopeless problems, this is in no way meant to

imply that science as such or science as a method for establishing "accurate" knowledge is not valuable—perhaps the most useful achievement of mankind.

When the dualism between science (for our purposes just that part of science which deals with literal statements) and the possible esthetic qualities of immediate experience was brought forward, this was not done to give force to the exclamation, "Look at the predicament science has caused." Such an ejaculation is simply not true. We may be in a predicament but it is not caused by science. Nor should the modest—it is more correct to say negative—attitude taken here toward man's ability to reason his way into Truth, be taken as evidence that the "philosophers of doom" have won a new recruit.

NO DOUBT the ability to reason, as this is carried by words, is a distinguishing characteristic of man. To say that this ability reaches a high point, if not the highest point of development when exercised in filling the limited purposes of precise scientific statement, does not seem to run contrary to evidence. Even to take another step and claim that at the present time logically formed statements constitute the best medium for communicating knowledge, appears sound. But to consider reason, as it is exemplified in logic, as the only or as the most appropriate basis for depicting man as man, leads to difficulties. The conclusion that the realization of man's rational nature works against esthetic fulfillment is not only contrary to the principal teachings of Western as well as Eastern thought, but portrays man as a rather pitiful thing. If the development of this function, an achievement which is often considered to typify man as man, is accomplished at the expense of (while neglecting) that inner fire which traditionally has been called the "soul," what a grubby creature man must be. Little wonder "philosophers of doom," building from implication of conclusions similar to the above, have discarded the personal as a source of direction. Nor is it surprising that despite differences, all of these philosophers support an interpretation of history in which the individual loses his identity.

Spokesmen for man-the-individual are needed. There is

not nor will there be a dearth of such crusaders. Already the results of reducing man to a "pitiful thing" (both as an idea and in a program for political action) have been met by resentment. Let us hope the resentment is of sufficient strength to turn back the forces, intellectual and political, that are bent upon dissolving individuality. When spokesmen for man raise their voices, there is always danger that they, in their attempt to dispel all dehumanizing influences, will dislodge the underpinnings of science. Those who react negatively to conclusions which provide "philosophers of doom" with ammunition may, in considering science a contributing cause, discredit our most useful tool for identifying and communicating knowledge. Because, in this discussion, a case is being made for individuality, it is possible to infer wrongly that science comes under attack.

Given the dualism in our illustration between scientific statement and existence, it does not follow that there exists a dualism in the nature of man. Nor does it follow that science has promoted such a dualism (a cleavage between man's esthetic and rational natures). Furthermore, the assumption that an attack upon science will resolve this imaginary dualism is not correct. This is incorrect because the dualism (the supposed cleavage in the nature of man) is not a product of science but evolves from an assumption concerning the nature of man. Such a dualism (in the nature of man) arises, not from the real split between scientific statement and reality, but when reasoning ability is considered definitive of man as man. That is, when reason and the beingness of man are equated. The dualism disappears when a definition of man rests upon a base of such broad dimensions that an observation reporting man's irrational tendencies (considering them as partially definitive of man's nature) does not rule out the possibility that, in bringing into play that which typifies his nature, he may also reason.

From a Dualism to a Paradox

RETURNING again to the other side (the esthetic) of the dualism between precise statement and esthetic experience, a question concerning terms presents itself. Among

the words used to point to this phenomenon were "reality" and "existence." The discussion of the clinician's plight should have made one thing clear. These words cannot be said to have literal meaning. That is, they do not refer to a fact—an increment of knowledge established through experimentation and communicable by way of statement.

Another key word also appears vague. When the term "dualism" is used in reference to the split between literal statement and reality, this term slips out of control. In order that a dualism exist, a double-natured thing or process must be apparent. In our illustration, that which opposes meaning (literal statement), being meaningless, has no referent. I suppose it could be argued that any word has meaning within the context of a sentence; hence "meaningless" means without meaning. Such an argument, while worthy of attention, brings us back to the enigma confronted by the clinician when he could say nothing meaningful about what was significant in the therapeutic interview—the esthetic quality.

The term "dualism" needs to be rescued from the haze that has fallen over it. A dualism does not exist between a pencil in the hand and no pencil. Substituting "literal statement" for the pencil, it is equally incorrect to say a dualism results when such statements are balanced against incorrect statements or no statement at all. It would seem as though when a meaningful assertion takes its place beside a commentary on "reality," and "reality" is defined as having no meaning, or even more ridiculous, is nothing, or impossible to define, that not only is there no dualism present, but calling attention to this fact is nonsense. This also is correct. It is correct because "reality" in the preceding escapes the confines of definition. There is a difference between defining reality as "nothing at all" and the observation that reality cannot be defined. Reference to our illustration (the clinician's dilemma), while not demonstrating the soundness of the preceding generalization, may serve to lessen its dogmatic ring.

THERE WILL always be a discrepancy between an overt act, the casual laying of the hand on a table, for example, and

the words used to describe that act. To say that they are not identical is a truism. It is possible to say many meaningful things about this act but these do not recreate the act, nor do they, in the strictest sense, give the act, as act, meaning. The act, at the time it occurs, just is. The discrepancy between simple, spontaneous, overt acts and verbal descriptions causes no particular difficulty. Complex behavior, however, in which the actor is identified with what he does, poses a problem. This, of course, is the dilemma the clinician finds himself in when he tries to report the esthetic quality of the interview.

Heretofore this question has been considered in part as coming out of the clinician's dual role of poet and scientist. The term "dualism," however, does not properly apply to the two-sided nature of the clinician's work. As he throws himself into his work, at one time if he is successful, he becomes aware of his patient, and in so doing involves himself in the intangible, poetic experience spoken of previously. This phase, while intangible with respect to precise statement, being outside the realm of concept, is concrete. At another time, taking a scientist's perspective (and it must be added he now enters the realm of abstraction), he reports on what he observes. In meeting each of these requirements he acts as a whole, integrated individual, assuming that he is such a person.

If contrasting literal statement with no statement or taking the clinician's dual role as a point of departure fails to sharpen "dualism," perhaps this term will receive a clearer focus when approached from the perspective of the definition of meaning that underlies this analysis. Within the context of this discussion terms have been said to have meaning when used in precise statements that indicate "correct" knowledge. Meaning, then, is limited to written and verbal statements that consistently point to propositions or principles (generalizations drawn from common properties of propositions). It follows that "dualism" as it appears in this discussion, when weighed against meaning, so defined, does not make sense. I must add that it does not make sense because what has been referred to as the other side of the "dualism" cannot be conceptualized. To meet the demands of making sense, the term must be

dropped. This leaves the clinician mutely standing before Reality with extended finger, pointing to a phenomenon of deep personal and professional "significance" which defies meaning.

A FEW PAGES BACK it was claimed those who deny the dualism between the esthetic and the scientific are incorrect. The preceding conclusion contradicts this claim. To satisfy our definition of meaning it must be admitted that a contradiction has occurred. Rather than a dualism there is a paradox. The clinician who cannot verbally capture the essence, the very concreteness, of his experience of understanding his client, because symbols cannot convey that understanding, realizes that he is sensitive to an experience which he cannot define, but an experience which sustains his work. This realization, dramatically illustrates what recent studies in logic and linguistics again and again reaffirm—that which is conceptualized and spoken can express only a small part of what is experienced and "understood."

IF MAN'S perpetual craving to reach his hand up into the sky to feel the blueness, rather than expanding his sense of poetic awareness, serves as a reminder, as it most often does, that he is after all a finite being who cannot transcend the limitations nature has placed upon him, then the implications of modern studies in logic and linguistics present a counterpart in irony. How strange, that science, considered by many a long-standing enemy of esthetic matters, should throw into relief the wordless, meaningless, and purposeless realm of the esthetic. That science, with its traditional prosaic bias, indicates a horizon which for hundreds of years has fallen within the province of students of the spiritual life, stands as an ironic partner to the poetic urge, which instead of enlarging the vision, draws attention to the narrowness of human perspective.

Although the term "dualism," as we have seen, fails to express a precise idea, the elimination of this term does not do away with the paradox. It would appear that the more accurate

language becomes, the less appropriate it is in dealing with those experiences which lead to deep and wide understandings, but which cannot be conceptualized. These experiences can be said to be outside the context of meaning and purpose. The more that is known, the greater the emphasis upon purposelessness. And it seems as though only when people dissociate themselves from purpose will they come into one of their most far-reaching possibilities—the esthetic experience.

A Fable Reversed

LOLITA, by Vladimir Nabokov. New York: Doubleday, 1958. 214 pp. $3.50.

VLADIMIR NABOKOV has written what at first seems simply a tale of child molestation. *Lolita* is the story of a middle-aged European intellectual who lusts after pre-pubescent girls to the exclusion of any other sex object, particularly excluding females *over* the age of 14, whose burgeoning secondary sex characteristics fill him with disgust. In his native Europe the hero, Humbert, had resigned himself to the belief that his fantasies would never be consummated, but when he moves to the United States he finds the means to become the guardian of Lolita, the 12-year-old orphan of a woman whom he had married solely to be near her child.

Nabokov has written the story of all misplaced libido and the problem of its expression and repression. *Lolita* is a masterpiece in showing the vacillation between fantasy and planned action in a mind hung up on a predilection which society represses.

The book is lyrical in the first half in which Humbert spins the European web by which he hopes to lead Lolita back, step by fascinating step, into his elaborate world; it is nightmarish after Lolita turns in bed to her cautiously approaching seducer and impatiently asks why he doesn't proceed at once to do what she and her friend Charlie did in summer camp.

After what turns out to be Humbert's seduction by the child, he becomes the traumatized, passive victim of her whims. Soon she is selling her favors to him at set prices for various intimacies. Forced to cover their tracks to avert suspicion, Humbert drives with Lolita across the U.S. from motel to motel, he feeding his lust and she indulging in hot fudge sundae jags.

OF MORE IMPORTANCE, however, than his comments on the psychology of sexual aberration is Nabokov's symbolic presentation of the state of American-European relations in mid-twentieth century.

During the nineteenth century, numerous novels appeared in which Americans in Europe lost their souls and sometimes their lives, usually in the midst of innocent tourism.[1] After a hundred or so pages of a travelog consisting of visits to the Castle of Chillon or an inventory of the holdings of the Capitoline Museum which typically begins such nineteenth century novels, comes an interruption in the train of matter-of-factness—a "mysterious influence" of some sort which proceeds inexorably to bewitch and destroy good Americans. Hawthorne introduces a dark stranger who just hangs around the major monuments and turns the sun of Rome to sinister shade. James implies unmentionable machinations (sexual enthusiasm or tamperings with the class structure as nearly as the reader can guess) on the part of his evil, charming Europeans. Through these unclear means, simple Americans become complex, therefore perverse, and so rot away.

Nabokov's book has the same necromancy at its center. Humbert approaches the American child with the accoutrements of Europe; and the rational traps, the seductive arts, the charming conversation, the whole glittering *savoir faire* of a great civilization in the midst of triumphant life are, upon contact with his objective, frozen into dross—the phoenix turned to stone and not even to a stone phoenix but a stone. The conqueror, lured from his Pincio lair, is a prisoner deep in Daisy Millerland.

It is after Humbert's fall that *Lolita* becomes a travelog, as in other details a reversal of the James-Hawthorne presentation. The itinerary of Humbert and Lolita is American reality.

[1] The best of this genre were *Daisy Miller* by Henry James and Nathaniel Hawthorne's *The Marble Faun*. Indeed the school continues, albeit dilapidatedly, in such works as Tennessee Williams' *The Roman Spring of Mrs. Stone* (which has a modern stranger who urinates on the major monuments in order to attract the heroine's attention), Mary McCarthy's "The Cicerone," and John Cheever's "The Bella Lingua." So the Gothic search continues in fiction and, to the amazement of Europeans, sometimes in real life.

Hawthorne speaks for his Americans: "Here is life, so many monuments to be seen in so many weeks in Rome. And don't miss the Dying Gaul in the Capitoline." Nabokov's book says, "Here is the U.S. One drives through 48 states staying in motels and sees the state parks, not forgetting Grand Canyon."

THE UNPARTICULARIZED affect which provides the energy in such books as *Daisy Miller* and *The Marble Faun* would justify—among others—a psychoanalytic interpretation. Freudian theory has it that the plots of some novels are transformed infantile fantasies. In the genre of nineteenth century novels here considered, the incidence of highly charged, mysterious happenings as the prime movers of plots, the evil but unspecific relationships between certain European characters, and the dark stranger who lurks and pounces can all be considered a child's fantasy of adult behavior which he can sense but cannot interpret in any except magical terms. As a result of his observation of the adult world, the child is, in his fantasy, punished by loss of his life or of his vital *raison d'etre*.

Lolita reverses this plot and has an adult returning to the world of childhood, in which all that maturity has embellished with the trappings of imagination and civilization is made material and is simplified by the deliberate avoidance of generalization and interpretation.

The nineteenth century novels told of a child who invades the shadowy mysteries of its parents' bedroom. *Lolita* tells of an adult who is locked into a sunlit playroom.

At the end of the novel Lolita, the all-conquering adolescent who operates in a teen-age universe, is brought to piteous impotence by the advent of physical maturity, marriage to another aged, disenchanted adolescent, and motherhood. Humbert finds Lolita brought thus low into the realm of the adult responsibilities which she is emotionally incapable of meeting. She turns to him for help, and the only help he can offer is financial; Lolita's problems combined with Lolita's shortcomings, are not to be ministered to by psychology or philosophy.

So the novel ends with Humbert reflecting upon the dam-

age he has wrought by cutting short Lolita's carefree youth, removing her from play with others of her age, and interrupting her sexual experiments with Charlie.

NABOKOV, author of such distinguished works as *Bend Sinister, The True Life of Sebastian Knight,* and *Pnin,* was born in Russia. He has learned English with a detached perfection which makes for some of the most distinguished and antic prose being written today. His writing is loaded with puns, asides, slang words, classical allusions, obscure references, and poetic flights. His cultural objectivity makes for a rich mixture of attitudes ranging from touching sentiment, to irony, to smartaleck satire, to cold wit, to suspenseful passion, to stark, universal tragedy.

His multi-faceted style is richer by far than the sober, straight utilitarian prose of a native. He uses language, meta-language, and meta-meta-language all on one page. His linguistic versatility is often as great as that of James Joyce.

LOIS MAYFIELD WILSON

San Francisco State College

Death on the Diamond

BANG THE DRUM SLOWLY, by Mark Harris. New York: Alfred A. Knopf, 1957. 243 pp. $3.50.

JAMES FARRELL, writing in *The Chicago Tribune* recently said, "The definitive book about the game of baseball and the life of the ballplayers has not yet been written." After reading *Bang the Drum Slowly,* a novel by Mark Harris, I must agree with Mr. Farrell. Yet, it must be confessed that of all the books written with baseball as topical background, Mr. Harris's book best mirrors the dugout, the bullpen, and other peculiar environs of baseball players. If *Bang the Drum Slowly* is not the ideal book, it still has much merit as a commentary on certain aspects of what the publisher almost *fan*atically says is the focal point on the American scene—the world of baseball.

Mr. Harris' ball club in *Bang the Drum Slowly* is unqualifiedly the best in the country. But the Mammoths have two main problems; (1) dissension among the players; and (2) a dying man who does most of the catching. Problem number one might be typical of any organization, but problem number two is a special catastrophe for a professional ball club.

As the weeks of the season go by and the championship games are played in daily succession, the mutual concern of the Mammoths, their families, and fans is, "Why have they not shook them all by now?" Harris reflects a sportswriter's analysis of baseball by assuming that a pre-game judgment of the outcome is perfectly obvious. "You have the people you have, and you know what you are up against and all you can hope is your people will pull together, and if they do you will also get a little help from wind and weather, and Mother Luck and the schedule and the umps and charity bounces."

The narration is made within the narrow limits of this plot then: Will the team dissension be resolved so as to permit this best of all possible teams to win the pennant? The unifying element is the fatal condition of the team's catcher. Realizing that a teammate has been "dealt a lousy hand" by Fate, the players individually and as a group forget the petty differences that have weakened the team's play during the season. A current of racial prejudice ripples through the story, Negro players forming a clique that picks on Pearson, the dying man, as a symbol of the frustrating bias. Again, a veteran player, suddenly aware his baseball "life" is nearly over, brutally nettles Pearson with sarcasm. Apprised that the catcher soon will lose his life at a young (even for baseball) age, the old-timer (35 in baseball) examines his conscience, reconciles himself to his wasted years and welcomes the immediate chance to help, not hate a younger ball player.

THE PSYCHOLOGICAL truths of professional baseball are perhaps better reflected in a typical baseball phrase "well, life is life, I guess, burn up the world in the spring and back to AA by summer." For there's no other way to live, and only

room for a few. . . . "You never pass a ballfield without lumping up a little in your throat . . . you miss the noise and excitement . . . by the time you're old enough to have more sense than power you realize you already pissed away the most exciting days of your life." Death is just another exit from the game.

As for the dramatic changes of heart and emotion which the players experience, the narrator comments, "Do not ask me why you do not live it up all the time when dying is just around the corner, but you don't. You would think you would, but you don't." The tensions of playing major league baseball are so peculiarly enervating for the individual player that another's personal tragedy is indifferently accepted, if not just barely acknowledged. Incongruously perhaps, it is the manager's job in baseball to help the troubled player forget his tragedy "'til the season's over." In *Bang the Drum Slowly*, the manager's role is least influential.

Pearson fits the popular conception of a ballplayer, not too obviously intelligent, nor obtrusively ambitious. He says, "I like sweating. I like hitting. Sometimes I even like popping out, looking up there and seeing how high you hit it. . . . I love stinking and coming in and ripping off your clothes and getting under the shower and thinking about eating." He says musingly, about his impending death, "I bet I'm the first ballplayer that ever died at the top of the Sunday averages." Pearson recovers from the initial attack that prompted that statement, and as the season progresses, he begins to concentrate a little harder on the *business* of baseball. Professional baseball is not just a game, a sport . . . "this is not golf, nor football, but human being against human being, and the s.o.b. that wears his thinking hat has got the advantage over the other" . . . "you can be a block of cement and do only the one thing a block of cement can do, and call it Football, or you can be seven feet tall and stand around dropping balls in a basket and call it Basketball, or you can whack a little ball and walk after it and call it Golf. But these are not baseball."

So, if this thoroughly entertaining book is not the true

and complete picture of baseball, it doesn't reiterate the number of stories that are *not* about baseball. Harris' main characters make sounds like ballplayers; the words are sometimes strange, but the sentiments are echoes of the club house. Perhaps no players say, "we drilled," for "we worked out," or "he took his swipes," instead of "he had his cuts." (But then, why not say "the power's on" in place of "they're hitting the long ball?")

Harris knows, though, (and may have had it on hearsay from a big league mouth) that a "pitcher is a fellow with a baseball in his hand facing a s.o.b. with a stick of wood in his hand, trying to keep the man with the wood from hitting the baseball solid because if he hits it too many times the pitcher becomes a man without a job and he is throwing with his arm and his brain and his memory and his bluff for the sake of his pocket and his family, and he needs help." *Bang the Drum Slowly* is the story of a pitcher, and a catcher who "must be eyes and ears (for the pitcher) watching runners, watching the boards, watching the lay of the land behind the box, the signs, picking up everything the pitcher might miss."

Which is really and truly what pitchers and catchers are.

AND WHAT PITCHER, catcher or other player would not say, "I'd rather play baseball than anything else. I do it best. I like the trains, I like the hotels. I like the boys. I like the hours and the money. I like the fame and the glory. I like to think of 50,000 people getting up in the morning, and squashing themselves to death in the subway to come and see me play ball."

That this book can come close to the core of people who are ballplayers and still tell a moving story of people as people makes one recall a symbolic phrase from the book:

> "It is sad, it makes you wish to cry.
> It is sad, it makes you wish to laugh."

JIM BROSNAN

St. Louis Cardinals, Busch Stadium, St. Louis

Couldn't She or Wouldn't She?

THE HUMANITY OF WORDS: A PRIMER OF SEMANTICS, by Bess Sondel. Cleveland: The World Publishing Co., 1958. 245 pp. $4.

THE STUDY of Sondel's treatise left the reviewer tormented with one question. Could she not or would she not write a better book? Perhaps we should give her the benefit of the doubt, for the work is described as a primer and is given the additional protection of the dust-jacket formula, "A Layman's Guide to the Power of Language." Some uneasiness nevertheless remains, not because of the elementary nature of the content, but because of infelicities in style. The fact that the book is a primer may even excuse the disconcerting abundance of bold-face type, italics, and brief semantic recipes. The reviewer fails to understand, however, the frequent lapses into inept and inelegant phraseology, the solecisms, and the abrupt or somewhat aphoristic style. Informative writing does not have to be graceless. Did Sondel stoop too low to talk to her readers and find the continued unnatural position so painful that she could not avoid an indirect communication of the pangs? In any case this reviewer found himself annoyed by the style, not the ideas. The book did not read easily. Perhaps the editor and publisher should be blamed, not the author.

Part I, "The Communication Process Relates Man to Mankind," discusses the impact of words upon human behavior. Sondel uses the analogy of electromagnetic field theory to suggest the nature of human "relatedness." She then introduces Morris' concept of the "open self" for application to individuals and groups, pointing to the effective uses of semantic devices by such open selves and open groups. The result of this discussion is to turn semantics to the achievement of an ethical ideal, whose precise nature remains somewhat obscure.

Parts II, III, and IV present, respectively, surveys of *The Meaning of Meaning* by Ogden and Richards, *Science and*

Sanity by Korzybski, and Morris' *Signs, Language and Behavior* and *The Open Self*. In simple form these sections describe certain key categories and techniques of semantics, such as the "triangle of meaning," indexes, hyphens, "et cetera," the map-territory distinction, the functions of language, and so forth. Sondel introduces a "vertical index" to designate levels of abstraction in addition to the "horizontal index," which denotes uniqueness. This may be a worthwhile symbolic device, but unfortunately she makes no extensive use of the notation in the book. The reviewer must remain somewhat suspicious of a tool for which the inventor finds no use. Furthermore, since she places both indexes in the same subscript position, untold confusion would result if any real use were to be made of the dual designators.

Part V, "A Field Theory of Communication," is the concluding section, to which the rest of the book is ancillary. This field theory is the result of Sondel's own research, pursued in connection with her professorial and consulting functions at the University of Chicago. It is based on the recognition that the human being is "a unified self in cross organization with the environment." The nervous system abstracts from the field an arrangement of elements, which is designated by "formators" ("[that] which establishes form in a written or oral statement"). The author's discussion of "formators" reveals that this is a new term for the titles used in making logically adequate classifications and divisions of a subject. Sondel goes on to emphasize the role played by purpose in the abstracting process. A field theory of communication is demanded by the requirement that a man control purposively the cross organization between communicator and environment. It provides "the semantic techniques by which to *use* change in the interest of purpose. These semantic techniques are: (1) Feedforward, and (2) Feedback, both of which are exercised most effectively through the use of verbal patterns." As seems to be typical of theories which achieve broad scope of explanation or description, there is a lack of precision and concreteness in this field theory of communication. The reviewer does not see what new uses (uses different from those made before Sondel's theoriz-

ing) semantic techniques are put to once they are incorporated into this field theory. What has changed with the introduction of the author's hypotheses? In terms of the emphases Sondel places on purposive elements in human speech and behavior, on the progressive unification of the self, and on the progressive unification of the field in which the self is one pole, semantics appears to be a tool employed in the interest of an ethics of self-realization. The reviewer agrees that a connection ought to be established between semantics and ethics, but he is not persuaded by the all-too-vague case submitted by the author.

SONDEL'S BOOK may be placed with benefit in the hands of those unacquainted with general semantics. The abruptness of the discourse and the recipe technique may be an aid to the novice. The book contains a bibliography and an index of seven pages each. There are occasional typographical errors. As this reviewer studied the text he came upon another review in a local newspaper. In it the writer commented that "Korzybski, a Japanese scientist, first introduced semantics, the science of language." Which of Sondel's lessons went unlearned by that writer?

The author of this primer is the writer of other books on communication—*Speak Up! A New Approach to Communication, Are You Telling Them?, Everyday Speech, Communication: A Field Theory,* et cetera. The reader should therefore consider the possibility that Sondel knows what she is doing and that this critic's judgments are faulty.

WALTER E. STUERMANN

University of Tulsa

DATES AND INDEXES

THE OUTSTANDING impression given by the International Conference on General Semantics held in Mexico City, August 24-27, under the auspices of Mexico City College, is the growing international character of this branch of study, which hitherto has been largely the product of U.S. writers and scholars.

Papers were delivered in simultaneous Spanish translation by U.N.-trained interpreters, so that participation and discussion could be bilingual. Mexican scholars played a large part in the proceedings. Eastern European countries were represented by an official observer, Dr. Albrecht Neubert, of the Seminar on English and American Studies of the Karl Marx Institute, Leipzig, German Democratic Republic (East Germany). Another official observer was Dr. G. Alfredo Jacome, professor of Spanish literature, National Central University of Quito, Ecuador. Papers and greetings were received from Korea, Argentina, the Japan Language Society of Tokyo, the Institute of Philosophy of the University of Turin, and the International Humanist Association.

Almost 250 persons took part in the Conference. A fuller account of the proceedings will appear in the next issue. *ETC.* will also, in the next issue, begin the publication of the major Conference papers.

HONOLULU is to be the city where the next International Conference on General Semantics will be held, in the summer of 1960. Speaking on behalf of the University of Hawaii, Dean Shunzo Sakamaki who was one of a delegation of seven representing Hawaii at the Mexico City Conference, invited general semanticists to hold their next Conference in Honolulu, under the auspices of the University. The invitation was discussed and favorably voted on by mail by the directors of ISGS during September and October.

BEGINNING with this issue, *ETC.* appears in a new format. The Editors believe that the new *ETC.*, because of reduced length of line, will be typographically more readable; because it can easily be tucked into pocket or handbag, it will also be more thoroughly read by present members and subscribers; furthermore, it is believed that, because of the great popularity of the paperback format, *ETC.* will reach a wider readership.

The editorial policy of *ETC.*, however, will not be changed. It

will continue to publish articles on the relation of language and thought to behavior, whether couched in the terminology of general semantics or in other terminologies. It will continue to publish articles giving new insights into general semantics, as well as those criticizing its formulations. It will continue to try to enrich general semantics by bringing its readers in touch with allied points of view, as it has done in the past with metalinguistics, transactional psychology, nondirective counseling theory, cybernetics, psychoanalysis, the behavioral sciences, and Zen Buddhism. It will try to continue to live up to its name, *ETC.*, which means that there is no "last word"—that every pronouncement, no matter how authoritative, must be followed by an *"et cetera,"* which stands for all that remains to be said, or, as Korzybski put it, the "characteristics left out" in the formation of any abstraction.

As for style, *ETC.* will try to continue its blending of the easy-to-read with the scholarly. *Every* article and review in *ETC.* is chosen and edited with the intelligent, thoughtful *general* reader in mind. *Some* articles in each issue can be understood and enjoyed in one reading. *Some* articles in each issue may require two or three careful readings. *ETC.* will continue to enliven its pages, as in the past, with humor and satire (as in the "Obiter Dicta" department) and occasional drawings.

THE INTERNATIONAL SOCIETY FOR GENERAL SEMANTICS is an organization maintained at absolutely minimum expense. Its executive secretary, Evelyn Rochetto (Mrs. Paul Rochetto), works full-time at half-time pay, because of her dedication to the task. She has one full-time clerical assistant. The ISGS business office in Chicago is a tiny back-room-and-storage-closet over a drugstore in a low-rent district in Chicago. The Editors of *ETC.* are unpaid. Writers who contribute to *ETC.* are unpaid. Neither ISGS nor *ETC.* enjoy any subvention or grants from foundations.

However, by careful management Mrs. Rochetto (and her predecessors in office) managed over the years to accumulate funds to work with. In 1957, the Directors of ISGS made a grant of $2,000 to the Mental Health Research Institute of the University of Michigan to help finance the research described by Anatol Rapoport in his paper, "General Semantics: Its Place in Science," published in this issue.

In education, in executive training and industrial management, in psychotherapy, in scientific research, in rehabilitation and social case-work, and in many other areas, new applications of general semantics are being attempted—often with gratifying success. The Special Issue

on Interpretation and Intercultural Communication of *ETC.* (Winter, 1957-58) brought general semantics to the attention of a large group of individuals in the U.S. State Department as well as in other governmental agencies and in the agencies of other governments. In this context, general semantics is seen as an aid in the training of diplomatic and liaison officers to increase their ability to understand and communicate with people of different cultures. ISGS must become stronger, both intellectually and financially, in order to meet the demands that will increasingly be made upon its resources.

Hence, it is earnestly hoped that persons interested in general semantics will increase their participation in its development. The Editors ask this participation not only in the form of increased financial support. We also ask it in the form of teaching, learning, writing, and discussing, so that present errors and shortcomings in general semantics knowledge and theory will steadily be corrected, and a stronger general semantics (or theory of evaluations) will emerge as time goes on.

GENERAL SYSTEMS, Volume II, The 1957 Yearbook of the Society for General Systems Research, edited by Ludwig von Bertalanffy and Anatol Rapoport. Geoffrey Vickers contributes the opening article, which may be understood as a description, from one point of view, of general systems research. It is concerned chiefly with the factors of control, stability, and choice in human organizations, considered as systems. Anatol Rapoport is co-author of a highly technical paper entitled "Some Unsolved Problems in the Theory of Non-Isolated Systems," and he is also the writer of a second critical essay, "Lewis F. Richardson's Mathematical Theory of War." "The Malthusian Model as a General System" and "Some Contributions of Economics to the General Theory of Value" are the two contributions by Kenneth E. Boulding.

WANTED: WORDS! During the next year, the Editors propose to compile a glossary of terms used in general semantics and related literature. They intend to get the project under way by revising, expanding, and bringing up to date the glossary presented by Hayakawa and Rapoport in Volume III of *ETC.* Our readers are invited to send suggestions of terms to be included to Walter E. Stuermann, University of Tulsa, Tulsa, Oklahoma. The words should be ones employed in general semantics or in allied disciplines such as cybernetics, logic, psychology, psychiatry, linguistics, neurology, mathematical biology, etc.

INTERNATIONAL LANGUAGE REVIEW. In Volume IV, No. 11 (April-June, 1958), the associate editor, Alexander Gode, writes under the title, "The Case of the Beau Tie." He comments on the humorless, superior attitude with which a general semantics newsletter cites the case of a young lady who wrote to a lovelorn column about her experiences with men wearing bow ties (beau ties, that is). Her complaint was that no man wearing a bow tie can be trusted. The newsletter apparently suggested that this was precisely the sort of thing which general semantics hoped to eliminate from the world. Gode takes the newsletter's attitude as a symptom of a creeping "dogmatism" among some general semanticists. This tough-minded attitude "tends to divide mankind into an elect minority and a damned majority." "The elect use language sedately, generously sprinkled with subscripts and a special hieratic jargon (which is utterly boring and threatens to take the fun out of life by taking it out of language)." *ETC.* and its editor are generously excused from Gode's curse. He goes on to make a similar indictment of some devotees of the international language movement, placing them under anathema for thinking that by using an esoteric set of symbols they can exorcise prejudices, stupidities, absurd generalizations, etc. Theirs is a foolhardy optimism. If we understand Gode, he is also contending that, should they be able to cast out the demons, life would no longer be quite as exciting and enjoyable as it now is.

Speaking of esoteric symbols, we most certainly have them offered to us in Wolfgang Weilgart's article, "A Psycho-Symbolic Language of Semantic Therapy." He presents a peculiar artificial language—"the language of space"—which he first conceived as a child. It is built on some thirty root words and expresses a limited number of basic concepts which "[he] obtained by comparing the root etymologies of 15 languages of Europe, Asia, Africa, and America from a philological, psychological, and philosophical point of view." The signs employed are a kind of hieroglyphics, somewhat reminiscent of Greek and Sinaitic characters. This language, Weilgart contends, "can be learned in a few hours by a child or the most primitive tribesman or by extraterrestrial beings, if such there be." It is suggestive of "man's primeval language of the time before the Confusion of Tongues." How Weilgart knows this or even knows that there was a time before the Confusion of Tongues is left unexplained. The main point he wants to make, however, is that the language has for years proved "invaluable in dealings with [his] psychologically dissociated patients." He gives examples of its use in therapy and maintains that it may be employed for the clarification of concepts.

TRUTH AND DENOTATION: *A Study in Semantical Theory*, by R. M. Martin (Chicago: University of Chicago Press, 1958; 304 pp., $7.50). The author is associate professor of philosophy at the University of Pennsylvania. This is a closely-knit book on logical semantics. It includes an analysis of such terms as "truth," "denotation," "predicate," "name," "consistency," etc. The presentation is systematic and formal, requiring a knowledge of the logic of truth-functions and quantifiers. Martin points out that the types of semantics which are concerned with the analysis of common languages, expression in literature and the arts, and schemes for social improvement rest upon unanalyzed foundations. His text is designed, in part, to provide a logically secure basis for such disciplines. "An important approach to the problems of denotation and meaning in natural language, and one frequently neglected by its students, is to be found in the study of formalized languages of greater and greater power of expressiveness." Several alternative theories of semantics are developed as part of the endeavor to "provide methods of giving the interpretation of formalized logistic systems in . . . the simplest and most economical ways possible." [Walter E. Stuermann]

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CONTENTS FOR NOVEMBER, 1958

ARTICLES

Two Evolutionary Theories (11) — M. GRENE
Causal Explanation in Natural History — T. A. GOUDGE
R. B. Braithwaite on Probability and Induction — HENRY E. KYBURG, JR.

DISCUSSIONS

On Mr. Roy Harrod's New Argument for Induction — K. R. POPPER
'Philosophical' and 'Scientific' Sense Data — J. R. SMYTHIES
Multidimensional Time — H. A. C. DOBBS
The Paradoxes of Confirmation — H. G. ALEXANDER

REVIEWS

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